What Industry's Doing In Far West

And How They Do It (See Inside)

AIR CONDITIONING HEATING & REFRIGERATION NEWS
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Here's Your Big Chance to Help Advance Your Business and Profession

(Conscience of the Industry Editorial by George F. Taubeneck)

EVERY MAN owes a portion of his time, talent, and treasure to the advancement of his profession and business category. Each of us has benefited from work done by our predecessors. We have capitalized on their experience, and profited by the knowledge they have passed on to us.

In turn, we have the duty *and privilege* of replenishing that fund of knowledge, of priming the pump of progress, so that our profession may increase in status, stature, and usefulness to mankind.

"Yes," you may agree, "but how do we go about it? Research is indicated of course—but what can we, as individuals, contribute in that area?"

Fortunately, an ideal opportunity to assist in important research—affecting not only your business and profession

(Continued on page 40)

Western Show Opens April 27 To Market Pushing for Top

Far West Growth Greatest in Product Use

LOS ANGELES — There's a lot of loose talk around and considerable loose writing about how the Far West is the fastest growing market in the U.S. for practically any kind of product, that it is the fastest growing market for air conditioning and refrigeration products in particular, and that much of the area has the fastest rate of population growth.

How much substance is there in this talk about the size and growth of the market in the Far West? The following are some of the facts, and some estimates based on fact, which the editors of the NEWS have compiled on this subject:

On the basis of available evidence, California was quite possibly the No. 1 state in terms of sales and installations of heat pumps in 1959. There are figures in hand which indicate that more heat pumps were shipped into California last year than to any other state. In terms of increase in shipments of heat pump in 1959, California was

(Continued on Back Page, Col. 1)

LOS ANGELES — When the doors open at 1 p.m. Wednesday April 27 at the Shrine Exposition Hall here for the Western Air Conditioning, Heating, Ventilating and Refrigeration Exhibit and Conference, visitors will view the largest exhibition of equipment for use in these fields ever to be assembled on the West Coast, declare officials of the Western Air Conditioning Industries Association, sponsors of the event, which will continue through Saturday, April 30.

"All signs point to this being the most successful exhibit and conference in the history of the event," stated William P. Tennity, head of Tennity Co. and president of the Western Association. "With all of the statistics pointing to the Far West as being the fastest growing market in the nation for the industry's products, we expect this event to play an important part in making 1960 the biggest year ever in the installation of the industry's

(Continued on Page 4, Col. 1)

NLRB Rules Against Supervisors Holding Union Positions

WASHINGTON, D. C.—Overruling one of its trial examiners, the National Labor Relations Board has ordered six Detroit-area plumbing and heating firms to stop interfering with the administration of Local 636, United Association.

The NLRB ruled that the companies had violated the National Labor Relations Act by their supervisors' participation in such union activities as holding office and voting in elections.

The Labor Board also ruled that the Detroit Association of

(Continued on Back Page, Col. 2)

N. Y. Flexible Duct Tieup Ended by Union

NEW YORK CITY—A strike by sheet metal workers in protest against installation of flexible metal air duct on an interior air conditioning system ended last week with the union agreeing to install the ducting.

Herbert Burstein, attorney for Triangle Sheet Metal Works, Inc., the firm against whom the strike was called, said the men returned to work last Monday after a 15-day walkout.

He said the men had not yet made any actual installation of the flexible duct, but would when they came to it.

He indicated that all actions taken against the union are still

(Continued on Page 61, Col. 4)

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Here Is a Great Idea For Customers
Operational Details
People Can Be Batty
Stories of the Week
Final Thought
Add Definitions

Here Is a Great Idea For Customers

This department, plus the editorial page of AIR CONDITIONING, HEATING & REFRIGERATION NEWS, has wept openly and frequently about poor service in too many cities and towns on too many of our industry's products and installations.

Nobody, but nobody, can shake us from the belief that slow and overcharged service fosters sales resistance; whereas prompt, satisfactory service is a top sales tool.

In Detroit, disgusted homeowners have seized the bull by the horns, to coin a metaphor. Let us tell you about the Home Owners Club, which offers centralized maintenance and repair *service.*

This club's ideas and systems not only are delighting the Motor City, but much of North America as well!

The Home Owners Club of Detroit was organized last year to provide all sorts of repair service for everyone.

Club dues are $12 a year; and the club also gets a kickback from cooperating contractors and servicemen.

Members benefit as follows:

(A) They may call one phone number 24 hours a day, seven days a week, and obtain their choice of more than 400 home maintenance and repair services.

(B) The club guarantees all workmanship performed and materials used by its contractors.

(C) The Home Owners Club endeavors to assure fair prices to all members.

(D) The club permits members to charge their home maintenance and repair services and pay for them by monthly statement.

(E) Through a unique zoning system the club eliminates

(Continued on Page 31, Col. 1)

Bid Depositories Make News In Calif.

San Diego Announces Cooperative Setup

SAN DIEGO, Calif.—Formation of the Bid Depository of San Diego County, a cooperative, non-profit organization designed to serve as a bid deposit and distribution center for the local construction industry, was announced here recently, following election of officers.

E. H. Larson was elected president. Other officers are David S. Shepersky, vice president; and Robert H. Baker, secretary-treasurer.

The officers are members of the board of governors and comprise the executive committee. Other members of the board are Ed Shafer, Sam Nesbitt, C. Forrest Baxter, and Albert W. Myers.

Offices of the new organization are at 3907 El Cajon Blvd., where the Allied Trust Fund Administration Service will act as bid custodian.

Function of the Bid Deposi-

(Continued on Page 4, Col. 3)

Trade Restraint Charge Hits Riverside Plan

RIVERSIDE, Calif.—Alleged restrictions practiced by operators of the Inland Bid Depository here have been attacked in a complaint filed recently by California State Attorney General Stanley Mosk.

The complaint reportedly asks for injunctive relief to break up what the attorney general apparently charges is a combination in restraint of trade, and asks that Inland Bid Depository be dissolved.

(An attorney for Inland states that work is now proceeding on changing certain bid depository rules which will make it acceptable to the attorney general's office. See folo story at the end of this story.)

Specific charges against the bid depository include the allegation that it is causing sub-contractors to bid only to depository members, and the requirement of the ½ of 1% fee charged to

(Continued on Page 61, Col. 2)

Carrier Reports 85% Of Labor Force Back

SYRACUSE, N. Y., April 7—Production at Carrier Corp.'s plant here was carried on without interruption on a full one-shift basis this week, despite continued picketing by some members of United Steel Workers Local 5895.

More than 85% of the regular work force have returned to their jobs, company officials stated. Shipments of finished

(Continued on Page 61, Col. 5)

Rheem Semiconductor Plant Opened In Mountain View, Calif.

MOUNTAIN VIEW, Calif.—Rheem Semiconductor Corp. formally opened its new $2 million 100,000-sq. ft. semiconductor plant at ceremonies attended by more than 200 San Francisco area community and business leaders.

The company, subsidiary of Rheem Mfg. Co., said it believed the new plant to be the largest silicon mesa transistor manufacturing facility in the world.

Dr. E. M. Baldwin, vice president and general manager, said the new plant is equipped with 700 tons of air conditioning capacity, positive interior air pressure, and a filter system for dust-free interior climate control necessary for high-quality electronics production.

February Room Unit Sales Estimated at 154,800 by NEMA

NEW YORK CITY—The National Electrical Manufacturers Association estimates that total industry sales by manufacturers of room air conditioners in February amounted to 154,800 units.

This brings such sales for the first two months of 1960 to 222,000 units, according to NEMA. No comparative figures were given since NEMA began issuing room air conditioner sales figures only recently.

The association also reported that sales of electric household refrigerators in February totaled 302,400, down from the 306,200 sold in the same month of 1959. However, sales for the first two months of this year were estimated at 569,100, compared to 562,400 in the corresponding period of 1959.

February sales of farm and home freezers rose to 97,400 from 90,600 a year earlier. But sales for the first two months of 1960 lagged behind the January-February period of last year, 150,600 against 169,400.

Siegler Corp. May Acquire Jack & Heintz

NEW YORK CITY — The Siegler Corp., Los Angeles, is interested in acquiring Jack & Heintz, Inc., Cleveland manufacturer of aircraft and missile electric systems and components, it was reported here recently.

Siegler is a major electronics manufacturer. Its Holly-General Co. division, with offices in Pasadena and Burbank, Calif., produces heating and air conditioning equipment.

In Los Angeles Area

Fedders Distributor Trains Room Unit Salesmen In Central Air Conditioning

LOS ANGELES — An intensive campaign to get a stronger foothold in the central air conditioning market in southern California is currently being conducted by the Los Angeles branch of the H. R. Basford Co., Fedders distributor.

Just six weeks ago, W. H. Mixter, president of the San Francisco based distributorship, named John Wingate, Jr. as commercial sales manager for the Los Angeles branch.

Already Wingate has put his seven man sales force through an intensive training program on selling central air conditioning. The salesmen have responded by signing up nearly 100 heating and air conditioning contractors in the southern California area to handle the Fedders line.

The decision to go more deeply into the central air conditioning field in southern California followed by a year the appointment of a separate central air conditioning manager at San Francisco, Medric Laurent. The operation proved highly successful. Since two-thirds of the air conditioning business in California is done in the Los Angeles area, according to Mixter, the need was obvious.

Heat Pumps Have Made Great Inroads

He pointed out that heat pumps particularly have made great inroads in the California market. More than 50% of Fedders Adaptomatic sales were in heat pump models, he said.

Before joining Basford, Wingate had spent 10 years in his father's business, Wingate Air Conditioning Co. in Riverside, Calif. He majored in refrigeration and air conditioning at California Polytechnic college.

Sets Up 4-Week Course

First move in his new job was to set up a four-week training course in central air conditioning for the firm's seven room air conditioner salesmen.

The course consisted of a series of eight evening meetings running 3½ hours each. The sessions covered such basics as definitions, terminology, duct sizing, heat load calculations, and installation.

For training in heat load calculations, Wingate set up a series of specifications for typical homes and commercial establishments. At each meeting two sets of specifications were handed out and the men had to calculate the heat load for each.

"At first," Wingate reported, "the men needed as much as 45 minutes to complete a job. But by the end of the course they could complete a calculation in as little as five minutes. And they were never more than a few B.t.u. apart."

At the end of training, a two-hour examination was given to test each man's ability in every phase of central air conditioning as well as features of the Fedders product line.

After learning how to make their calculations, the men were provided with short cuts to faster calculating. For example, each man was given a "crib sheet" providing worked-out c.f.m. calculations for various sized duct.

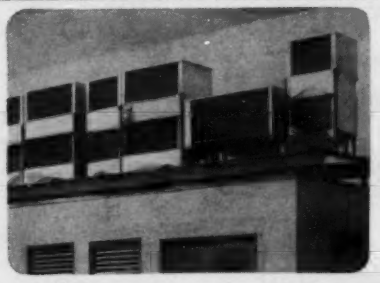
Having proven their proficiency, the men will not be permitted to rest on their academic laurels, however. Wingate is scheduling sales training meetings for every other week.

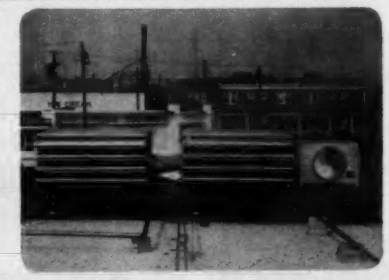
A tool the salesmen find valuable in making their sales presentations to contractors is a "conversation piece" in the form of a component of a Fedders Adaptomatic unit.

With the actual component in his hand, the salesman finds it a built-in opportunity to talk up one feature of the Fedders unit at a time.

throw your compressor out!*

*outside that is!





STOP wasting costly building space!

USE KRAMER
OUTDOOR CONDENSING UNITS
FOR AIR CONDITIONING—COMMERCIAL, INDUSTRIAL & SUPERMARKET REFRIGERATION

Kramer's Outdoor Condensing Units will operate outside without any additional protection or adjustment under all temperatures and weather conditions. They can be used for any application —air conditioning, commercial refrigeration, supermarket application, or industrial refrigeration.

Completely assembled, wired, tested and factory run-in, the units arrive on the job ready to operate. Simple hookup eliminates costly installation and control adjustment time. Kramer's Outdoor Condensing Units end waste of valuable indoor space.

WRITE FOR BULLETIN

KRAMER TRENTON CO., Trenton 5, N. J.

47 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

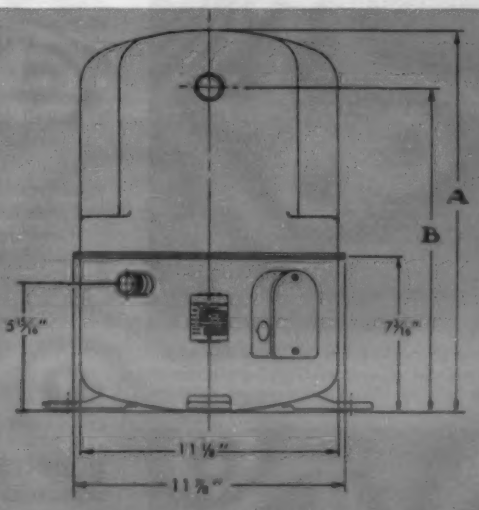
for quiet, compact packaged air conditioners, Copeland has what it takes!

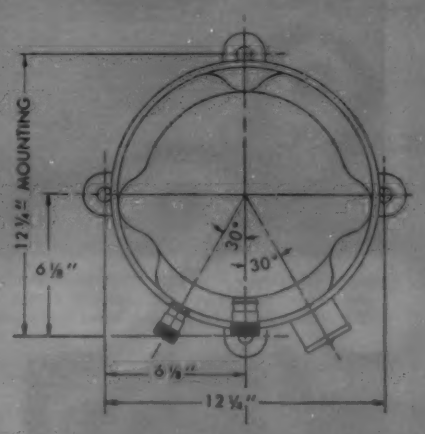
Welded hermetics, 2½, 3, 3½, and 4 H.P.••• 1750 R.P.M.•••4-pole•••4-cylinder•••minimum space requirements•••internal spring mounting for quiet, vibration-free operation•••inherent motor-protector internally mounted, hermetically sealed•••rotalock service valves rotate 360° •••statically and dynamically balanced crankshaft•••positive displacement gear oil pump, automatic reversing•••heavy duty motor

NEW COPELAWELD welded hermetics pack more value into packaged air conditioners

Put "plus performance" into your packaged air conditioners with these four-cylinder Copelaweld welded hermetic motor-compressors. You'll get top B.T.U. capacity and operating dependability. For complete specifications, request Bulletin 5909.

For smaller sizes, investigate Copelaweld two-cylinder models, ½ through 1½ H.P., and Copelaweld Space Savers, ⅕ and ⅛ H.P.





DIMENSIONS

Model	"A"	"B"
4U16-252	16 11/16"	13 3/16"
4U18-302	16 11/16"	13 3/16"
4U22-352	17 5/16"	14 5/16"
4U26-402	17 5/16"	14 5/16"

PERFORMANCE DATA

Model	Capacity* B.T.U./Hr.	Full Load Amps.	Locked Rotor Amps.
4U16-252	29,400	13.6	70
4U18-302	32,800	17.9	70
4U22-352	39,400	21.4	126
4U26-402	45,000	27.8	126

*Capacity based on A.S.R.E. rating conditions: Evaporating Temperature 45 F.; Condensing Temperature 130 F. Suction Gas Temperature 65 F.; No liquid sub-cooling.

SINCE 1918 **Copeland** REFRIGERATION CORPORATION, Sidney, Ohio

Western Show Program--

(Continued from Page 1, Col. 5)

products in the 11 Western states."

Products of well over 150 companies will be shown in the exhibit space at the Shrine Exposition Hall. Anyone who has any genuine interest in the air conditioning, heating, ventilating, and refrigeration fields may attend the Exhibit and Conference by registering at the Shrine Hall. (A list of the companies whose products will be exhibited is on page 6.)

The Exhibit will be open from 1 p.m. to 10 p.m. from Wednesday through Friday, April 27-29. On Saturday, April 30, the Exhibit hours will be 10 a.m. to 6 p.m.

Conference sessions will be held throughout the day on all four days, and early evening sessions are scheduled on Wednesday, Thursday, and Friday.

The program for the Conference, put together under the direction of Arthur J. Hess, president of Hess, Greiner and Polland, and immediate past president of ASHRAE, will offer symposiums, panel discussions, and individual presentations on a diversified group of subjects—but all relating to the practical application of the industry's products. *(For a complete session-by-session Conference program, see page 7.)*

A regional show such as this event, aimed at drawing attendance from the 11 Western states, is designed to offer those industry people who are remote from the located centers in which national industry shows are held, the opportunity to obtain the benefits that such a show offers, point out officials of the Western Industries Association.

San Diego Bid Depository--

(Continued from Page 1, Col. 2)

tory of San Diego was outlined by Larson, who said, "This is a voluntary association of construction industry trade associations. Its purpose is to protect the construction industry, in all its ramifications, from sharp practices which increase costs, weaken quality, and destroy public confidence."

Larson explained that in other parts of the nation where similar bid depositories have been established, the result has been "lower construction costs, improved quality, and better protection for owners, architects, and builders."

Any awarding authority, whether architect, owner, governmental organization, or general contractor, may certify the San Diego Bid Depository as the official trustee through which subcontractors, suppliers, or others shall submit bids on a specific project.

Use of the bid depository is provided awarding authorities without charge, but once the depository has been appointed for a specific job, the awarding authority must award the contract to the low acceptable bidder in each category on which competitive bids have been requested.

"The awarding authority may save his own clerical time by authorizing the Bid Depository to call for bids—listing with the Depository, if he wishes, the names of any subcontractors which he specifically wants to bid the job," it was explained.

"A locked box is labeled by the Depository for each general contractor on each project. Into this locked box each bidder—or his authorized representative—places his bid.

"If several general contractors are bidding the same project, any subcontractor who is invited to bid may bid all of the general contractors, or he may bid only those contractors under whom he wants to work, declining any general contractor on the same project. Or he may submit different bids for each general contractor.

Duplicate Filed With Bid Depository

"Each bidder files with the Bid Depository an exact duplicate of each bid he submits to the general contractor. All bids are sealed, machine-stamped with the time and date of filing, and placed in a locked box which is under the care of bonded employes of the Bid Custodian, which is a licensed trustee.

"After the closing time for bids, the general contractor may pick up the bids addressed to him. Any party submitting bids may be present at the time the bids are released to the general contractor, but bids may not be altered after the closing time.

"All bids are turned over—unopened—to the general contractor, and he may take them with him. He may reject bids from any bidder with whom he does not wish to work simply by turning back to the Depository the bid, unopened, recorded as 'rejected,' over the signature of the general contractor or his authorized representative.

"The general contractor also may stipulate, upon receiving—but before opening—any bids, that he will accept the bid of any specific bidder only if it is a specified amount or percentage lower than any other bid. This stipulation must be made in writing before any bids are released by the custodian.

"When the general contractor has selected the low bidders, he is obliged to notify the Depository promptly. Unless otherwise specified, bids remaining binding on the parties for 30 days or until the start of the project, whichever is sooner."

Depository Objective Outlined

Larson said the bid depository "is intended to benefit all parties to a construction project by promoting ethical business practices and, at the same time, stimulating true competitive pricing."

He claimed that the bid depository system assures owners and awarding authorities the lowest practicable cost for each segment of a construction project.

The Bid Depository of San Diego was organized by the Construction Subcontractors Association of San Diego, a nonprofit trade association. Functions of the depository and of the bid custodian are under supervision of the board of governors, composed of representatives from each subcontracting trade association, general contractors, architects, and engineers.

Operations of the new organization are financed by a percentage levy on the value of the bid of each successful bidder. This is ½ of 1% of his bid, with a minimum of $5 and a maximum of $250.

The depository is scheduled to begin accepting bids immediately, Larson said.

In convention halls, coffee shops and commuter trains...

Heated discussion is still a convention trademark, but physical swelter has given way to air-conditioned comfort in giant convention halls. The amount of air-conditioned space needed for meetings and exhibits often has a bearing on the location chosen for major conventions.

Quick snacks and coffee breaks are bread and butter to the modern air-conditioned "coffee shop"—a relatively new and thriving institution in busy urban centers.

Brow-mopping days are over for many train travellers, thanks to air-conditioning. Air-conditioned cars pay off in increased traffic—and immeasurable good will.

You'll find

genetron®

SUPER-DRY REFRIGERANTS

Approved!
Accepted!
Preferred!

For great and small cooling jobs by the thousands—for original or replacement charge—you'll find "Genetron" Super-Dry Refrigerants approved . . . accepted . . . preferred! Men who manufacture America's finest refrigeration and air-conditioning equipment as well as those who design it, install it and service it, all endorse "Genetron" Super-Dry Refrigerants. Wholesalers recommend them for their consistent high purity, maximum dryness, and over-all top quality.

"Genetron" Super-Dry Refrigerants are stocked from coast to coast by all leading wholesalers. Use the best! Insist on "Genetron" Super-Dry Refrigerants!

genetron 11 ORANGE LABEL CCl_3F
TRICHLOROMONOFLUOROMETHANE

genetron 12 WHITE LABEL CCl_2F_2
DICHLORODIFLUOROMETHANE

genetron 22 GREEN LABEL $CHClF_2$
MONOCHLORODIFLUOROMETHANE

genetron 113 PURPLE LABEL $C_2Cl_3F_3$
TRICHLOROTRIFLUOROETHANE

genetron 114 BLUE LABEL $C_2Cl_2F_4$
DICHLOROTETRAFLUOROETHANE

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N. Y.

Allied Chemical

Dealers To Pay First Electric Bill In Pre-Season Heat Pump Promotion

PHOENIX, Ariz. — To promote early season central heat pump sales, 30 Phoenix area heat pump dealers and the electric utility are cooperating in a direct mail campaign through which the purchaser will have his first month's electric bill paid for by the installing dealer.

The offer applies to units purchased by May 15 as a direct result of the direct mail program.

Along with newspaper advertising, the Salt River Project (the electric utility) is mailing a folder to its 82,230 customers.

The folder is headlined "Don't Simmer This Summer. There's a Heat Pump for Every Home Designed to Use Your Existing Ductwork."

It opens out to reveal a "Special Announcement" making the free electric bill offer, a brief discussion of advantages of a heat pump, and a "Free Power Certificate."

The special announcement says: "Your Arizona Heat Pump Distributors' Association has requested the Salt River Project to make the following announcement: Upon your purchase of a heat pump central air conditioning system from a dealer participating with the Arizona Heat Pump Distributors' Association, your first full month's electric bill for your entire home will be paid for you by the participating dealer after the heat pump installation is made.

"This offer is made by those dealers participating with the Arizona Heat Pump Distributors' Association, and does not constitute an offer of free electric power by the Salt River Project. The dealers' offer expires May 15, 1960."

The power certificate says that the purchaser must, to be eligible for the free power offer:

"1. Have owned and lived in the home for at least six months duration.

"2. Purchase a central heat pump unit from any participating dealer between the date of this offer and May 15, 1960.

"3. Present this card to dealer at time of purchase."

Back of the folder contains a listing of the 30 participating dealers with their addresses and telephone numbers.

R. N. Ruecker, dealer sales consultant for Salt River Project, requested dealers to keep track of their heat pump installations during the promotion.

Contempt Sentence Upheld In N. Y. Payoff Investigation

ROCHESTER, N. Y.—The 30-day contempt-of-court sentence imposed on James A. Fazio of Buffalo, a key witness in the investigation into alleged payoffs for master plumbers' licenses, was upheld by the Appellate Div., Fourth Dept.

In a unanimous decision, the court affirmed Supreme Court Justice Joseph A. Nevins order committing Fazio to jail.

Justice Nevins held Fazio in contempt of court for refusing to testify before the holdover Erie County grand jury after being granted immunity.

The defense claimed that the immunity offered Fazio was incomplete because it does not protect him from possible revocation of his plumber's license.

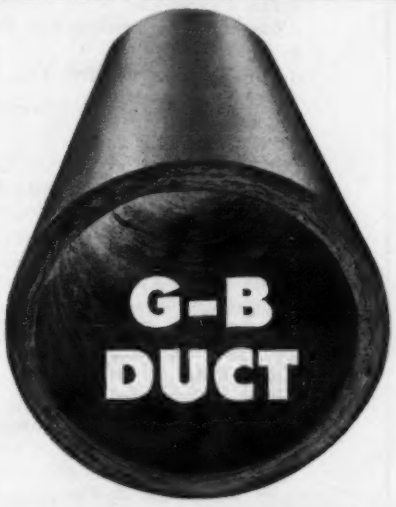
Patterson Processor Ups Cold Storage

PATTERSON, Calif.—An additional cold storage warehouse of 360 carload capacity has recently been completed here in this west side San Joaquin valley agricultural area by Patterson Frozen Foods, owned by two brothers, Amerio and Alphonse Alemeni.

In 1959 a plant addition increased freezing capacity for fruits and vegetables for packaging up to 120 tons a day.

Harold Holstine, refrigeration contractor of North Sacramento, installed a two-stage ammonia freezing job with Fuller booster equipment which added 75 tons to plant capacity, now totaling 800 tons.

Holstine is now installing a continuous belt bulk freezer which takes the food being frozen through tunnels.



SAVES YOU

MAKES YOU

Give Your Bids a Competitive Price Edge With G-B DUCT — The "Prefab" Duct That Cuts Installation Time Almost In Half!

G-B DUCT, the round, prefabricated glass fiber duct, is appearing in more and more residential and commercial air conditioning and heating bids. The reasons are simple. Contractors have discovered that this performance-proven duct helps them *get* good jobs, *do* good jobs, and make good profits.

FAST, FOOLPROOF INSTALLATION

As a material, G-B DUCT actually costs a little more than metal-plus-insulation ductwork, but it can be installed so much faster and cheaper that finished costs are usually lower than those for conventional duct. G-B DUCT comes in 6' ready-to-use sections, in standard sizes up to 18" diameter. Sections fit snugly and swiftly together with standard metal sleeves and vapor barrier tape. Elbows and T fittings are also easily fabricated with a knife and factory-supplied templates. For all practical purposes, homeowner complaints and call-backs are eliminated!

ATTRACTIVE VAPOR BARRIER FINISH

G-B DUCT's uniformly thick walls are covered with an air-tight plastic vapor barrier sleeve, providing a smooth, attractive finish as well as positive protection against sweating and moisture build-up. With vapor barrier tape sealing all seams, a completed G-B DUCT system is neat and clean in appearance.

WINS READY APPROVAL

For good reasons, homeowners and builders are equally enthusiastic about G-B DUCT. There's no question that it saves the homeowner substantial money on fuel and electric bills. "Whisper-quiet" operation of heating and air conditioning systems is another very attractive feature—every foot of G-B DUCT contains millions of tiny sound absorbing cells. G-B DUCT has been approved by air conditioning manufacturers and local building codes for both air conditioning and heating use. It is labelled by Underwriters' Laboratories and therefore, meets requirements for FHA insured loans.

Discover for yourself why G-B DUCT is such an effective competitive weapon! Bid it just once, and you, too, will *get* good jobs, *do* good jobs and make good profits.

FOR NAME OF YOUR NEAREST G-B DUCT DISTRIBUTOR, SEE ADJOINING COLUMN

GUSTIN-BACON Mfg Co

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AUGUSTA, Ga., Noland Company
BALTIMORE, Md., Leroy Insulation Company
BANGOR, Me., Eastern Glass Co.
BATON ROUGE, La., Eagle Asbestos and Packing Co.
BEAUMONT, Tex., Coburn Supply Co.
Solar Supply Company
BILLINGS, Mont., Big Horn Supply, Inc.
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Shook & Fletcher Supply Co.
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BRUNSWICK, Ga., Baker Bros., Inc.
BUFFALO, N. Y., Industrial Insulation Sales, Inc.
North Star Supply Company
CHAMPAIGN, Ill., The Lewis David Co.
CHARLESTON, S. C., Baker Bros. Co.
CHARLESTON, W. Va., Asbestos & Insulating Co.
Dunbar Metal & Sup. Co., Inc.
CHARLOTTE, N. C., Metal Service, Corp.
CHATTANOOGA, Tenn., Noland Co.
CHICAGO, Ill., E. C. Carlson Company
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CINCINNATI, Ohio, Van Dyke Supply Co.
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Culberg of Ohio
CORPUS CHRISTI, Tex., Precision Insulation Co.
DALLAS, Tex., Payne-Ladewig, Inc.
DAYTON, Ohio, A & H Supply Co.
DAYTONA BEACH, Fla., B&F Insulation Co.
DAVENPORT, Iowa, Republic Electric Co.
DECATUR, Ga., Lennox Industries
DES MOINES, Iowa, Iowa Asbestos Company, Inc.
DETROIT, Mich., G. L. Johnston Co.
ENGLEWOOD, N. J., Englewood Supply Co.
EVANSVILLE, Ind., George Koch Sons, Inc.
FT. WORTH, Tex., Bracken Co.
GAINESVILLE, Fla., Baker Bros. Co.
GULFPORT, Miss., Paine Supply Co.
HEMPSTEAD, N. Y., Air Supply Co.
HOUSTON, Tex., Precision Insulation Co.
INDIANAPOLIS, Ind., Lyon Lumber & Supply
JACKSON, Miss., Paine Refrigeration & Supply Co.
JACKSONVILLE, Fla., Baker Bros. Co.
Florida Air Conditioners
Reynolds Aluminum Supply Co.
KANSAS CITY, Mo., Central Supply Co.
Kelley Asbestos Co.
Superior Distributing Corp.
KNOXVILLE, Tenn., E. B. Copeland Co.
Holston Air Conditioning Corp.
LAKE CHARLES, La., Coburn Supply Co.
Solar Supply Company
LAREDO, Tex., Anderson-Sturgis Company
LITTLE ROCK, Ark., Gunn Distributing Co.
555, Inc.
LOS ANGELES, Calif., Western Fibrous Glass Prod. Co.
LOUISVILLE, Ky., General Insulation & Roofing Co.
LUBBOCK, Tex., Anderson-Young Elec. Co.
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Morrison Supply Co.
MACON, Ga., Industry Insulation Co.
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MIAMI, Fla., Reynolds Aluminum Supply Co.
Southern Metal Prod. Co.
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MINNEAPOLIS, Minn., Asbestos Products, Inc.
MYRTLE BEACH, S. C., Air Conditioning Supply
NASHVILLE, Tenn., Central Air Conditioning & Heating Co.
Reynolds Aluminum Supply Co.
NEW IBERIA, La., Brooks Electronics
NEW ORLEANS, La., Eagle Asbestos & Packing Co.
Solar Supply Co.
NORFOLK, Va., Automatic Equipment Sales Co.
NORTH PLAINFIELD, N. J., United Supply Co.
ODESSA, Tex., Morrison Supply Co.
Western Chemical & Supply Co.
OKLAHOMA CITY, Okla., Ball Dist. & Engineering Co.
OMAHA, Nebr., Cardinal Supply & Mfg. Co.
ORANGE, Conn., Insulation Supply Co.
ORLANDO, Fla., Baker Bros. Co.
OWENSBORO, Ky., Western Kentucky Gas Co.
PASSAIC, N. J., Ital Supply Co.
PHILADELPHIA, Pa., John P. Scanlan, Inc.
PHOENIX, Ariz., Kircher Asbestos & Rubber Co.
PITTSBURGH, Pa., Keystone Div. of Drave Corp.
PORT ARTHUR, Tex., Coburn Supply Co.
PORTLAND, Me., Eastern Glass Co.
PORTLAND, Ore., Western Fibrous Glass
RALEIGH, N. C., Reynolds Aluminum Supply Co.
RED BANK, N. J., Altex Pipe & Supply Co.
RICHMOND, Va., Automatic Equip. Sales Co., Inc.
Reynolds Aluminum Supply Co.
ROCHESTER, N. Y., J. F. Burnett, Jr., Inc.
Rochester Oil Burner Company
ROCKFORD, Ill., Mott Brothers Co.
SALT LAKE CITY, Utah, Bullough Asbestos Sup. Co.
SAN ANTONIO, Tex., San Antonio Machine & Supply
SAN DIEGO, Calif., Western Fibrous Glass Prod. Co.
SAN FRANCISCO, Calif., Western Fibrous Glass Prod.
SAVANNAH, Ga., Baker Bros.
Reynolds Aluminum Supply Co.
SEATTLE, Wash., Western Fibrous Glass Prod.
SHREVEPORT, La., Frith Sales Co.
SOUTH BEND, Ind., Conditioned Air, Div. of Plaze & Co.
ST. PAUL, Minn., Asbestos Products, Inc.
SULLIVAN, Ill., Lewis David, Inc.
SYRACUSE, N. Y., Burnett Process, Inc.
TALLAHASSEE, Fla., Baker's, Inc.
TAMPA, Fla., Eagle Roofing & Art Metal Works, Inc.
TULSA, Okla., Ball Distributing & Engr. Co.
VALDOSTA, Ga., Baker Bros.
WASHINGTON, D. C., Walter E. Campbell Co.
WINSTON-SALEM, N. C., Air Conditioning Supply

Firms Whose Products Will Be Shown At Western Air Conditioning, Heating, Ventilating & Refrigeration Exhibit

Air Conditioning & Heat Pump Distributors
Air Conditioning, Heating & Refrigeration News
Air Conditioning Supply Co.
Air-Con Filter Corp.
Air Distribution Products
Air Equipment Sales Co.
Air Factors, Inc.
Air & Refrigeration Corp.
Airserco Mfg. Co.
Airtemp Div., Chrysler Corp.
Air Therm, Inc.
Allen Cooler & Ventilator
Allen Roof Exhauster
Allied Chemical Corp., General Chemical Div.
American Air Filter Co.
Ames & Graham
Ammerman Corp.
Amprobe
Anemostat Corp. of America
Arkla Air Conditioning Corp.
Armstrong Cork Co.
Armstrong Machine Works
Automatic Devices Co.
Bacharach Instruments
Bahnson Humidification Equipment
Baltimore Aircoil
Barry Blower Co.
Bell & Gossett Co.
Brunner Div., Dunham-Bush
Bryan Steam Corp.
Buensod-Stacey Co.
Calgon Co.
Calif. State Polytechnic College
Carnes Corp.
Carrier Corp.
Cleaver-Brooks Co.
H. D. Conkey & Co., Field Control Div.
Connor Engineering Co.
Continental Air Filters
Controlair Mfg. Co.
Loren Cook Co.
Cooling & Heating Engineers
Copeland Refrigeration Corp.
Custom-Aire Gas Furnace
Harry Davies Co.
Davis Steam Corp.
Richard S. Dawson Co.
Day & Night Mfg. Co. (The Payne Co.)
Detroit Controls Div. of American-Standard
Donaldson Power Ventilator Co.
Drayer-Hanson
Drayer Electric Cord
Dryomatic Corp.
Dunham-Bush, Inc.
E. I. du Pont de Nemours & Co.
Duro-Dyne Corp.
Dust Control, Inc.
Electronic Control System
Encyclopaedia Britannica, Inc.
Engelhard Hanovia, Inc.
Equipment & Materials Reporter
Farr Co.
Fireye Controls
Flanders Filters, Inc.
Flexible Tubing Corp.
Food Machinery Corp., Peerless Pump Div.
Fraser & Johnston Co.
General Electric Co.
Glass Insulation Co., Inc.
Goodfellow Co., Inc.
Graham Mfg. Co.
Gustin-Bacon Mfg. Co.
Halstead & Mitchell
Hagan Chemicals & Controls, Inc.
George T. Hall Co.
Havens Cooling Towers Div.
Heat & Power Equipment Co.
Heat-X, Inc.
Henry Valve Co.
Hess, Greiner & Polland
Hilti of California, Hilti Rapid Fastening Systems, Inc.
Holub Industries, Inc.
Horrell Co.
Hubbell Corp.
Insulfil Co., Inc.
International Metal Products Div., McGraw-Edison
Jackes-Evans
Janitrol Div., Midland-Ross Corp.
Jenn Air Products Co., Inc.
Jo-Bell Level Controls
Kaiser Aluminum & Chemical Sales, Inc.
Krueger Air Conditioning Corp.
Laars Engineers
Lake Chemical Co.
Lattner, Inc.
Lawler Controls
Little Giant Pump Co.
Littrell Hardware Lines, Inc.
McDonnell & Miller
McQuay, Inc.
Master Fan Corp.
Metal Industries
Miracle Adhesives Corp.
Modine Mfg. Co.
Mueller Climatrol
Natural Gas Bureau
National Gas Equipment
New York Blower Co.
Norman Products
Pacific Air Products Co.
Pacific Metals Co., Ltd.
Sid E. Parker Boiler Mfg. Co., Inc.
The Payne Co.
The Peerless Electric Co., Fan & Blower Div.
The Peerless Electric Co., Massachusetts Div.
Peerless Pump
Penn Controls
Peterson-Contarsy
Presstite Div., American-Marietta Co.
Prox Co., Inc.
Pyle-National Co.
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Refrigeration Appliances
Refrigeration Machinery Corp.
Remington Arms Co., Inc.
The Ridge Tool Co.
Riston Brugger Co.
Rubatex, Div. of Great American Industries
Safeguard Corp.
M. W. Sausse & Co.
Schemenauer Mfg.
Schnacke, Inc.
Shaw-Perkins, Inc.
Siemon Mfg. Co., Power Flame Div.
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Titusville Iron Works
Toledo Pipe Threading Machine Co.
Tuck-Aire Furnace Co.
United Sheet Metal Co., Inc.
United Shoe Machinery Co., "Pop" Rivet Div.
U. S. Rubber
U. S. Flexible Metallic Tubing
Utility Fan Corp.
Valley Refrigeration Supply Co.
Valve Blower Co.
Vilter Mfg. Co.
Virginia Smelting Co.
Walton Laboratories
Water Chemists, Inc.
Dept. of Water & Power, City of Los Angeles
Waterloo Register Co.
Weil Pump Co.
White-Rodgers
Grant Wilson, Inc.
Wiremold Co.
Worthington Corp.
Wright-Temp Mfg. Co., Inc.
York Div., Borg-Warner Corp.
Ziegler Steel Service Corp.

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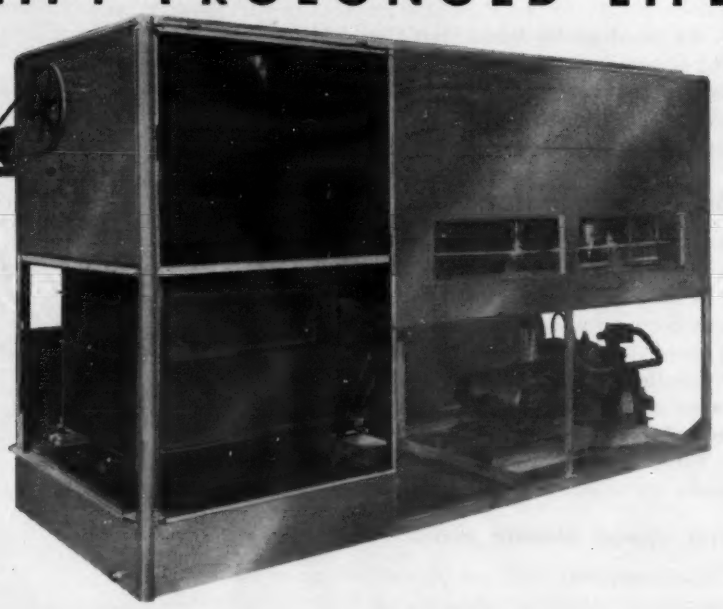

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FEATURES:

ALL COPPER AND BRASS water pan, float valve, condenser coil, spray tree, eliminators, blower scrolls. Standard galvanized blower wheels and stainless steel shaft.

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You have a definite feeling of confidence when you specify Governair's COOPER-FITTED evaporative condenser with its many fine features.

ALL spray water is contained within a COPPER WATER JACKET. This exclusive DOUBLE WALL CONSTRUCTION assures product longevity and lower maintenance. In fact, throughout the entire unit, you find QUALITY . . . with no worry about faulty galvanizing or temporary corrosion protection.

You also have an extremely WIDE SELECTION, as this evaporative condenser is supplied for REMOTE installation or as an integral part of Governair Corporation's self-contained PACKAGED equipment . . . Conventional; Multi-Zone (as pictured); and Water Chillers.

GOVERNAIR

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Broad and Diversified Program Set for Western Conference Sessions April 27-30

LOS ANGELES — A broad and diversified program of panel discussions, symposiums, and individual presentations, covering up-to-date practices and techniques in the design, application, and maintenance of air conditioning, heating, ventilating and refrigeration equipment marks the Conference sessions of the Western Air Conditioning, Heating, Ventilating and Refrigeration Exhibit and Conference April 27-30 at the Shrine Exposition Hall here.

The Conference sessions will run through the four days, and early evening sessions are also scheduled on Wednesday, Thursday, and Friday. The program is under the direction of Arthur J. Hess, president, Hess, Greiner & Polland, and vice president of the Western Industries Association, and immediate past president of ASHRAE.

Day-by-Day Program

A number of changes and modifications in the program from the preliminary plans announced earlier this year were announced by Hess. The present line-up for the Conference sessions, day-by-day, is as follows:

April 27: 2:30 p.m. to 4 p.m. Panel discussion on "Central System Refrigeration for Air Conditioning" with William Yerkes serving as moderator. Yerkes is a mechanical engineer with the firm of Hilburg and Turpin, Los Angeles consulting mechanical engineer.

Taking part in the discussion will be Robert H. Phillips, association engineer in the Los Angeles office of Carrier Corp., handling the topic of Absorption Refrigeration. C. S. Perkins, chief mechanical engineer with Albert C. Martin and Associates, Los Angeles architect and engineer, will lead the discussion on large heat pumps. A representative of The Ready Power Co. will speak on gas-driven refrigeration compressors. Ernie Alberts, application engineer with the Los Angeles Department of Water and Power, will discuss small heat pumps.

April 27: 6:30 p.m. to 8 p.m. Symposium on "Fan Drive Components." Moderator will be Ralph Phillips, Jr., mechanical engineer with the firm of Ralph E. Phillips and Associates, consulting mechanical engineer.

Panel members include: Glenn Fildes, application engineer with The Fabling Co., Los Angeles, manufacturer of industrial products, discussing "Fan Drive Selection." Emmett Moylan, application engineer with M. W. Sausse Co., manufacturer of vibration isolation equipment, will speak on bases and vibration isolation. A representative of Sterling Electric Motors, Inc. will speak on electric motors.

April 28: 10:30 a.m. to noon. Panel discussion on "Condensing Methods." Moderator will be William L. Holladay, mechanical engineer and partner in the firm of Holladay and Westcott, Los Angeles consulting mechanical engineer.

Panel will include John Engalitcheff, president, Baltimore Aircoil Co., speaking on "Evaporative Condensers." D. A. Nurse, application engineer, Tennity and Co., Los Angeles, speaking on "Air Cooled Condensers." Harold Halls, engineer with Recold, Inc., speaking on "Closed Circuit Systems." James Thompson, application engineer with the Los Angeles office of The Marley Co., speaking on "Cooling Towers."

April 28: 2:30 p.m. to 4 p.m. Symposium on "Testing and Balancing." Moderator will be William P. Tennity, president, Tennity & Co., Los Angeles.

Panel members include: Robert Lambert, president, Air Factors, Inc., talking on "Balancing Air Handling Systems"; E. C. Williams, president, Airserco Mfg. Co., discussing "Testing Refrigeration Systems"; T. F. Scully, application engineer, Heat and Power Equipment Co., Los Angeles, talking on general system balancing methods.

April 28: 6:30 p.m. to 8 p.m. Presentation on "High Velocity Ductwork" by Ray Hess and S. D. Sheff, mechanical engineers with Pacific Air Products Co., on the production and installation of high velocity duct systems.

April 29: 2:30 p.m. to 4 p.m. Temperature Control Clinic. Moderator will be E. L. Nelson, chief engineer, Union Ice Co. of California. Panel will consist of representatives of Barber-Colman Co.; Johnson Service Co.; Minneapolis-Honeywell Regulator Co.; The Powers Regulator Co.

April 29: 6:30 p.m. to 8 p.m. Symposium on "Trouble Shooting." Moderator will be Henry Ulovec, vice president, Mehring and Hanson Co., Los Angeles mechanical contractor.

Panel members will include George Bostick, head of Automatic Burner Co. of Los Angeles, service and installation contractor, talking on "Gas and Oil Burner Servicing." Jack McCune, application engineer, Los Angeles office, McConnell and Miller, speaking on "Boiler Feed and Safety Controls." Robert Savage, president, Water Chemists, Inc., Los Angeles, water treatment engineer and contractor, talking on "Water Treatment." Dan Gott, application engineer, Los Angeles office, Detroit Controls Div., talking on "Gas Valves and Gas Controls."

April 30: 10:30 a.m. to noon. Symposium on "Specification Writing." Moderator will be Chester D. Walz, Los Angeles consulting mechanical engineer, working with a panel of architects, engineers, and contractors of his selection.

April 30: 2 p.m. Presentation on "Lighting Loads in Air Conditioning."

April 30: 3 p.m. Presentation on "Hospital Air Conditioning" by Arthur J. Hess, president, Hess, Greiner & Polland and Heat and Power Equipment Co. of Los Angeles.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

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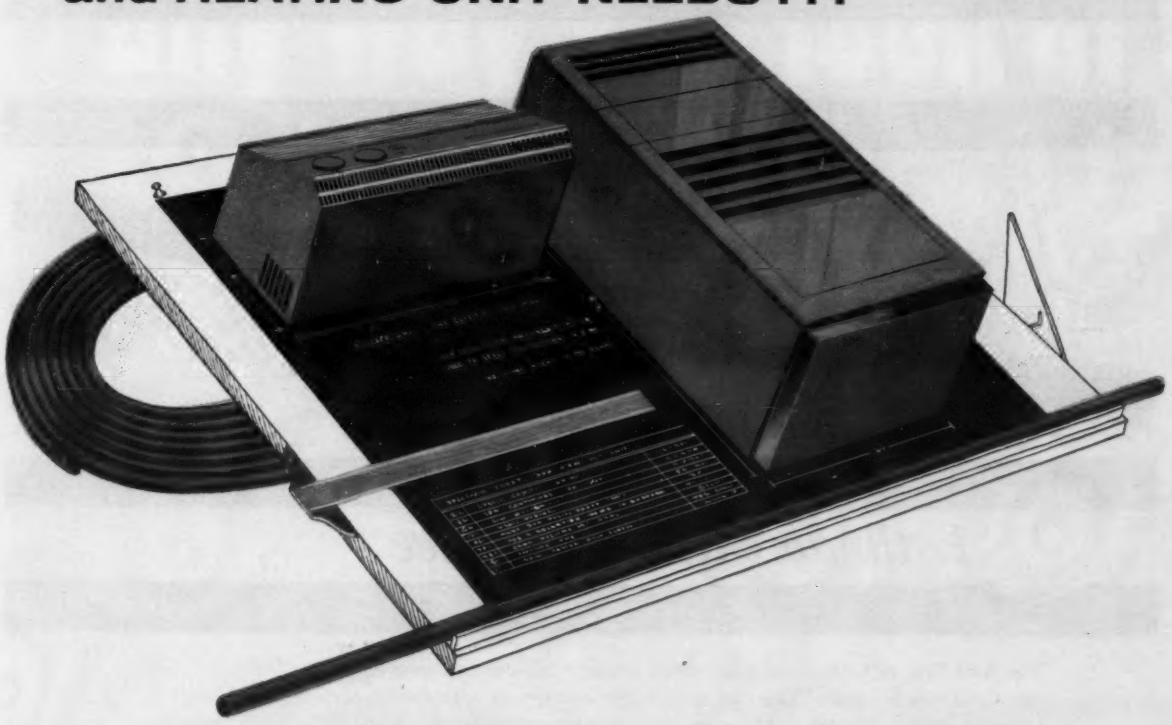
REFRIGERATION, AIR CONDITIONING
and HEATING UNIT NEEDS . . .



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Ratio of Heat Pumps In Quality Homes Rising In San Joaquin Valley Area

FRESNO, Calif. — Sales of heat pumps in quality homes in the San Joaquin valley have increased to the point where they are now selling one for one against remote cooling units with gas furnaces, reports Nat N. Leas, manager of Conditioned Air here.

"With the advent of the smaller self-contained 2, 3, and 5-ton packaged heat pump, we are seeing more of them being applied in competition with natural gas," Leas declared.

"Medical buildings, bowling alleys, supermarkets, and similar structures are turning to multiple packaged heat pump application to give them lower first cost space saving installations," he added.

A number of large air-to-air and water-to-water heat pumps are employed in the San Joaquin valley and more are being designed every day. One done by Conditioned Air Co. is for a 149-unit motel and uses Westinghouse chillers, one 40 tons and the other 60 tons' capacity, with supply and return wells being used to handle the water.

Leas pointed out that a few years ago, most residential air conditioning sales were for 5-ton units. But now, he said, we are seeing more and more demand for 2-ton units, indicating more sales in the small home and to low income homeowners.

They are predominantly packaged units used to replace evaporative coolers. "Unit sales are about 50% ahead of last year and dollar volume 33% above last year to date," he pointed out.

Leas commented that tract home installations have been all but lost to the air conditioning contractor. He attributed this to a trend among tract builders to buy direct and install the equipment themselves.

They do this, he said, by using a crawl space plenum without ductwork and installing separate furnaces and packaged air conditioners. By employing the United Construction Workers, he indicated, they can do all classes of work with any type labor.

Contending that this results in a sub-standard and unsatisfactory installation, Leas added that some air conditioning contractors are "trying to correct this situation in a proper and legal manner."

Simplified Fire Station Cooling Keeps Everybody Satisfied

PENDLETON, Ore.—Lennox heating and cooling equipment installed in the new fire station here has resulted in a satisfied architect, happy customer, and much additional floor space.

When an earlier program was found to be impractical—it reportedly required a maze of complicated damper and ductwork and occupied 12 sq. ft.—Harold Hendricks of Thew Sheet Metal and the Lennox territory manager, Ken Blanding, succeeded in getting the architect's specs changed.

A "Landmark" system was used, which included a GR341-170 with CR341-500 and HSA2-753, and with the additional space the firemen now have a place to hang their wet clothes.

Industry-Wide

Launch Program To Lick Problems of Out-Dated Codes

WASHINGTON, D. C.—A coordinated industry-wide program will be launched in the National Housing Center on April 11 "in an effort to lick the problems of out-dated and multiple building codes which hamper the entire construction industry."

The National Association of Home Builders, the Associated General Contractors of America, Inc., the American Institute of Architects, and the National Society of Professional Engineers are sponsors of the meeting.

The code conference, which will be attended by representatives of a score of other trade associations and by representatives of building materials manufacturers, is designed to coordinate a long-range program to achieve workable solutions to many unnecessary barriers to building progress, it was pointed out.

Glendale Advises Contractors on Allowable Bleed-Offs

LOS ANGELES — The Refrigeration & Air Conditioning Contractors Association of Southern California reported that it has been informed of the city of Glendale's current bleed-off rate allowed for refrigeration and air conditioning equipment which will not require discharge into a storm drain or dry well.

William L. O. Martin, Glendale's director of public works, was quoted as explaining:

". . . it is our policy to accept bleed-off from water conservation devices, with the provision that such discharge be regulated to not exceed 2% of the circulating rate from smaller units (up to about 15 tons) and not to exceed 1% of the circulating rate from larger units.

"For computation of maximum discharge rates, we use 1¾ g.p.m. per ton (or hp.) of equipment served as an average circulation rate. . . ."

According to the water advisor for the association, the bleed rate on larger equipment would be 2.10 gallons per hour per ton.

Bally Names Fredrickson In Western Region

BALLY, Pa.—Appointment of Ray G. Fredrickson, Van Nuys, Calif., as new regional sales manager for Oregon, Washington, California, Nevada, and Arizona, has been announced by Leon Prince, general sales manager of Bally Case & Cooler, Inc.

Fredrickson has been associated with Manitowoc Equipment Works Div. as general sales manager, and prior to that spent four years with the Deepfreeze Div. of Motor Products Corp. as manager of contract sales.

Fredrickson and his associates will be traveling extensively through the five-state territory, it was noted. Warehouse stocks will be set up in key cities.

Estimate with confidence

The ARI Seal of Certification identifies unitary* air-conditioning equipment you can count on. You can specify this equipment with confidence, knowing it is built and backed by one of 46 manufacturers producing more than 90% of the unitary equipment sold today.

The Seal appears only on equipment meeting industry-approved performance standards; equipment subject to testing under adverse conditions —with emphasis on wilting heat and high humidity. It establishes a standard of comparison of ratings between brands.

That's why ARI-certified equipment makes it easier for you on any job. When you specify units bearing the ARI Seal, you are assured that they will provide the cooling power claimed. The result: quicker sales with less trouble for you—fewer complaints, fewer service calls, less repair and replacement expense.

Take advantage of these benefits. Make sure the ARI Seal of Certification appears on all unitary equipment you specify.

For free explanatory booklet and Directory of participating manufacturers, write to: Chief Engineer, Dept. A-402, Air-Conditioning and Refrigeration Institute, 1346 Connecticut Avenue, N.W., Washington, D.C.

*"Unitary" air conditioners included in this program: all packaged air conditioners, whether single units or two-piece units (called "split" systems) up to 135,000 Btu per hour in capacity, but not including room air conditioners. ARI Standard 210-58 for electrically-driven equipment; ARI Standard 250-58 for heat-powered equipment.

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in refrigeration
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Look for this symbol. It's your assurance of getting a product that does the job better. Ask your wholesaler for "Virginia" products—for all your needs.

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here's why

VIRGINIA® Chemicals

is called the value line!

WATER TREATMENT SERVICE

From "Virginia"—the plan and the chemicals to help you turn water into money.

Let us show you the simple, tested way to sell this valuable, profitable service to old and new customers—how to follow through and increase profits up to 50%. Send for free booklet, "How to Turn Water into Money."

SCALE & CORROSION INHIBITOR

No sludging — no feeder devices — slow, even solubility

"Virginia" Inhibitor reduces scale buildup sharply, holds corrosion to a new low. Just scatter the glassy polyphosphate crystals into the sump. Their slow, controlled solubility supplies a small, continuous dosage. This, together with proper bleed, prevents sludge from forming and keeps scale-forming solids in suspension or solution. Regular dosage means less scaling, less labor, lower equipment maintenance costs.

LIQUID SCALE REMOVER

In shatterproof throwaway container— fast-acting

Goes to work instantly, cleans rapidly, with dissolving capacity 50% greater than that of many conventional cleaners of this type. Effectively inhibited to prevent damage to metals. Light container is much easier to handle than heavy gallon jugs. No breakage, splash or drip. Tough plastic liner and spout make pouring and resealing easy. Ideal for units choked with thick scale.

PRESSTITE INSULATION TAPE

For pipe condensation problems

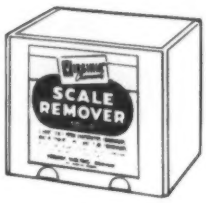
Ideal for lines used for alternate heating and cooling. Can be used on hot pipes up to 165°F. Contains 40% virgin cork—will adhere to any dry surface. Never gets hard or brittle. Quick and convenient.

PRESSTITE PERMAGUM SLUGS & CORDS

For sealing openings

Use slugs on seams, copper tube, BX and conduit entries to protect against moisture. Shields insulation. Nonshrinking, will not age harden. Cords ideally shaped for use around display cases, freezers, coolers, etc.

SOLID SCALE REMOVER



Rapid, economical and safe—even for galvanized equipment

Virginia Solid Scale Remover contains 96% sulfamic acid. This dry-acid formulation is packed in 10 and 50-lb drums. Simply add to the cooling water, stir into solution, and it goes to work. Provides greatest measure of protection for galvanized, dipped zinc, and aluminum water-cooled equipment. Destroys algal growth. Safe to handle, easy to use.

ALGAE-CIDES, 1,2&3

Stop algae and slime from fouling water in systems

No. 1 is an organic copper compound, lethal to algae and much more active than ordinary copper salts. For slimes, No. 2 is the ideal preventive—eliminates slimes and mixed slime-algae infestations, including copper-resistant algae. A quaternary ammonium compound, Algae-Cide No. 3 is equally effective for killing both algae and slime-causing bacteria. It comes in 1-qt. graduated liquid containers.

VASCOCEL INSULATION

Preformed to cut time and labor costs

Closed-cell structure of VascoCel makes condensation impossible. Made from self-extinguishing material that will not feed a fire—cannot carry flames along pipes from room to room. Resists acids, oil and fungus. So soft and flexible you can tie it in knots—durable, clean and odorless. Slips on easily over pipe or tube—or can be slit lengthwise and fitted onto pipe already connected. ID's from ⅜ to 3⅛ in.

DEGREASING SOLVENT

Low toxicity — noncorrosive — fast drying

Designed expressly for the degreasing needs of the refrigeration, electrical and automotive trades, "Virginia" No. 10 Solvent can be used safely to clean motors, parts, etc. Its high flash-point of 154-160°F and dielectric strength of 20,000 volts insure low fire hazard.

ICE MACHINE CLEANER

Eliminates slow freeze, bad taste and odor

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Cans are packed 12 to a case
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'Electronic Control System' Handles 301 Zones In New California Highway Div. Building

LOS ANGELES—In contrast to its existing office building which was controlled by a 10-zone air conditioning system, the new office building recently completed here for the California Division of Highways has 301 air conditioning zones.

The new structure is of "Lift-Slab" construction with tinted glass, curtain-wall skin.

Air is supplied at high velocity to Barber-Colman CVO constant volume mixing boxes.

These mixing boxes, serving all 301 zones, temper the zone supply air, maintain the required air volume regardless of static pressure changes within specified limits, and attenuate fan noises so as to maintain quiet office areas, says Barber-Colman.

Cooling is supplied by two Trane 350-ton "CenTraVac" units, and two Cleaver-Brooks boilers are used as the heating media.

A detailed description of its "Electronic Control System" installation has been provided by Barber-Colman.

"The entire air conditioning system for the new building, as well as the smaller existing office building, is controlled by a schematic control center located in an office of the new building," it was pointed out.

"All graphic illustrations depicting the many fan, refrigeration, heating, and air conditioning systems employed throughout the buildings are printed by a silk-screen process on a gold anodized aluminum panel.

"Thus, the control and remote operation of 14 separate mechanical equipment rooms is centralized in one location. The following features have been incorporated into the master schematic control panel:

"1. Time switches automatically pilot the operation of the equipment in both buildings.

"2. The supply fans of each system are started in sequence through a program switch to reduce the starting load.

"3. Hand-Off-Auto switches override the automatic control to start and stop any supply or exhaust fan, or the refrigeration system of the new building, which includes the chilled water pumps, condenser pump, and cooling tower fan.

"4. Pilot lights indicate operation of each of the previously mentioned items and also all hot water pumps, oil pumps, boiler burners, and compressors.

"5. The existing building room thermostats have been modified so that the control point can be remotely adjusted.

"6. The hot and cold deck temperatures of the eight fan systems in the new building can also be remotely adjusted from the control center.

"The electronic cold plenum controller proportions the return air, outside air, and exhaust dampers in sequence with the chilled water valves, yet provisions have been made to override the cold plenum control of the dampers should the outside air temperature rise above the predetermined setting.

"Switches in the control center also provide for an override of the controls so that dampers may be closed manually.

"A multiswitch resistance bulb temperature indicator serves to check 35 various temperatures throughout the building, including all hot and cold plenum temperatures, space heating hot water supply and return, space cooling chilled water supply and return; domestic hot water, drinking water supply and fan discharge temperatures of each fan system in both buildings.

"Relative humidity can be determined from the outside air wet and dry-bulb recorder. Boiler flue gas temperature is indicated on a pyrometer. Flow conditions of the space heating hot water, space heating chilled water, and condenser water are recorded in g.p.m.

"Pressure gauges provide a constant visual check of the operating pressures of the space heating hot water supply, domestic water supply, existing building steam boilers, and the suction and discharge of all compressors.

"The entire system is monitored by a warning light and buzzer control to indicate immediately unsafe conditions should they occur at any point throughout the entire system."

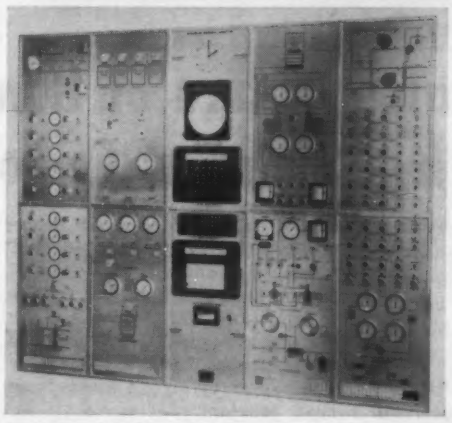
Other additional features of the new building are:

1. Smoke detectors located in all return air ducts used for fire protection.

2. Plenum temperatures reset in accordance with the velocity in the duct.

3. Roll-type, viscous-impingement filters are used on all fan systems with charcoal activated carbon filters used on all outdoor intakes. This provision was made so that during adverse atmospheric conditions the outside air and exhaust air dampers could be closed and the remaining outside air would be filtered by the activated charcoal, it was explained.

Architectural design of the building and complete engineering were done by California State Div. of Architects.



BARBER - COLMAN "Electronic Control Center" which services the entire air conditioning, heating, and ventilating system in the California Div. of Highways' new office building.

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Product	Uses	Characteristics
Wood Sealers	Treating porous boards to minimize absorption of moisture.	Black. In brush, dip or spray consistencies. Excellent water and water vapor resistance. Mild odor. Suitable for use under wide temperature range. Little or no shrinkage.
Sound Deadeners & Metal Coatings	Minimizing sound vibrations. Coating and sealing metal enclosures exposed to or immersed in water, as air conditioners, cooling towers, etc.	Black, brown and dark red. Little or no odor. All water resistant. Some acid, base, fire, heat and shock resist. Nil or slight shrinkage. Low thermal conductivity.
Rubber Cements	General purpose adhesion, as for adhering insulation or deadener pads. Especially good for fiberglass pads.	Excellent water resistance. Superior bonding properties. Service temp. range 0°F. to 175°F.
Elastic Compounds —Extrusions	Sealing seams on refrigerators, air conditioners, walk-ins, etc. Helps to keep out moisture or give an air seal where needed.	Tapes or round extrusions. Non-oxidizing. Excellent adhesion. Non-shrinking. Low heat and electrical conductivity. Will not affect most plastics, rubbers or lacquers.
Elastic Compounds —Grommets	Sealing areas where tubes and wire go through partitions, etc.	Available in grommets, special shapes. In black, green, aluminum-grey. High water resistance. Low thermal conductivity. Excellent adhesion. No shrinkage.
Cork Tapes	Wrapping and insulating cold refrigerant lines.	Excellent water resistance, adhesion, cohesion and insulation. Non-oxidizing, no unpleasant odor. Good flexibility.
Plastisols	Heat curing sealers for sealing outer cabinets of refrigerators and freezers, sealing spot-welded seams, providing smooth fillet on liners.	Little shrinkage. Good adhesion. Non-toxic. Low heat and electric conductivity. Non-oxidizing. Good resistance to water, acids, bases and oils.
Pumpable Mastic Sealers (White or Black)	Wherever a permanently soft mastic sealer is required, as for sealing breaker strips, fasteners, name plates.	Excellent water resistance, non-oxidizing, non-staining, non-corrosive. Little or no slump or flow at elevated temps., will not get brittle below freezing. Will not soften enamel, craze or etch most plastics. Non-shrinking.
Permagums (Brown or White)	Sealing seams of all kinds in refrigerating equipment.	In bulk or extrusions. Non-hardening. Mild odor, non-contaminating. Water resistant, good adhesion. Easily handled and molded. High cohesive strength. Will not swell most rubbers. Flexible at low temperatures.
Plastic Sealer Tapes	Sealing seams, especially under extreme temperature variations.	Excellent water resistance. Non-staining, non-bleeding, non-corrosive. Extremely tacky, do not cold flow at elevated temperatures. High elongation and cohesion, including many release-type surfaces as glass, polyethylene, etc.
Wat-R-Bar	Sealing in areas subject to frequent freeze-thaw cycling.	Permanently plastic, in bulk or extrusions. Excellent resistance to deterioration caused by freeze-thaw cycling. Good adhesion, water-resistance. Non-shrinking. Won't stain or soften lacquer, swell most rubbers or plastics. Will not flow at 400°F.
Pressit-O-Cel	Insulating refrigerant lines. Controls condensation, sweating, and provides vapor barrier.	Closed-cell sponge tubing. Excellent water and air-tightness. Resists oil, acid, alkali. High insulation factor, non-inflammable. Lightweight. Long life. Resistant to rodents, vermin and fungi.
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Builder and Buyer Reactions

Present Status, Future of Home Conditioning Discussed by Builder at Customer Forum (2)

Some frank talk by a builder who has had considerable experience with residential air conditioning, about its present status and future possibilities, with some interesting sidelights on builder and home buyer reaction to some of the factors in installing and using air conditioning, will be found in the accompanying report, which is being published in two parts of which this is the second.

This report comes out of a transcript of the conversations at one of the "Customers' Forums" which have been arranged by York Div., Borg-Warner Corp. to get some information and first-hand expressions of opinions from some major factors in the purchase of various types of air conditioning.

This particular forum was devoted to the residential field, and the principal participant was Leon Weiner, president, Franklin Builders, Wilmington, Del., and a pioneer in offering central residential air conditioning to home buyers. With Weiner was Max Glazar, head of Glazar Bros., Wilmington air conditioning dealer who has made the installations in the new homes. Others taking part included York Div. officials and Octave J. Peppo, The Electric House, Inc., New Orleans, who was in York at the time the forum was held.

Dave Crawford, York

On air conditioning units—do the builders or the people prefer self-contained units, or the remote type of application—the split system?

Weiner (replying)

As far as I'm concerned I think with the way York—we have some differences on this by the way—produces its remote equipment so that maybe a 13-year-old child can do the installation, it would make little difference to us. By that I mean your product has been so manufactured that it can be installed efficiently. There is really little difference in desirability, the only thing is that when you have to put equipment outside you raise the question of where you put it for appearance and a number of other things. I don't know how you are going to get away from that problem.

A. B. Newton, York

Does Mr. Weiner see any trend in design that may effect the design of our equipment—is that essentially correct?

Weiner (replying)

We are constantly pressed for space and one of the real problems facing us is that more and more compact equipment is needed. In terms of design and the character of the equipment, we are learning how better to insulate exterior walls and panels, materials are being developed that have a much greater insulating factor than previously which will help reduce the amount of tonnage required and when a builder will learn to use the proper insulating materials they can hold that tonnage down.

T. J. Ammel, York

I was very much interested in the approach you took when you said that back in 1952 you said "now we can put in solid panes of glass. We no longer need operators on the window and yet if I were to build a home today and live in it myself I would want operators on it." Why?

Weiner (replying)

There are a number of reasons and they are not simple. Part of it is my family won't buy it, they really get a buzz out of opening the windows in the spring and getting the screens on there and having that wind waft through the place and kick the curtains around.

Second we have found that there is a point of diminishing return in the efficiency of air conditioners. When you are trying to get down from 74 to 72° and that unit is working and working and you're figuring—my gosh—its only 74 outside and I want to get down to 72 to be a little more comfortable and you finally say to hell with this, expense-wise, and you shut it off. This is the second factor that begins to become part of the problem and then there is a third factor. That third factor is that very frequently if you don't try to over-size the equipment—this is a running fight about how big you make the equipment and how small you keep it, cost in relationship to operation and everything else—you find the equipment does a beautiful job if you start it off running early in the morning and it runs all day during a hot day. The sun goes down about 7:30 or 8 o'clock or 8:30 whatever it may be and about 9 o'clock a nice cool summer breeze starts to spring up and your equipment is still grinding away, bringing it down or holding it down. After awhile, you throw the switch and you open up the front and back doors and the windows and you say "let's not fight this thing."

Maybe I haven't been sold on it properly and I'm willing to admit that, maybe somebody hasn't sold me hard enough.

T. J. Ammel

Why are not more of these acoustical materials which you see used on many types of applications used in homes for keeping down noise and at the

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Quickly send more information on your Gas-Lite promotion.
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same time for their insulating effects?

Weiner (replying)

The answer to that is partially the same answer as you have in air conditioning. People are not sold, will not pay a few bucks more for the acoustical materials. We have installed them in houses and found that the homeowner will say to us "how much could I get off if instead of acoustical tile I use the regular materials." The ideal situation is one in which there is a combination of materials that have good acoustical qualities, insulating qualities, and structural qualities all in one.

Bill Goldsmith, York

Now that we've made the home a servant, most of the servants of the home are powered by motors. How much of a factor is noise in the home today? What complaint do you get on both appliance and heating and air conditioning noise from your customers or clients?

Weiner (replying)

I used to worry an awful lot on this subject. When we installed our first unit down in Linnfield in a very small house that was less than 1,000 sq. ft., we had an open area in the utility room, we didn't have any doors or curtains or anything else. That used to upset me. Back of that was a bedroom and they used wet plaster in those days, because we hadn't grown up, and we bought spring clips that they came out with to absorb the vibration and noise and everything.

Somewhere along the line we ran out of the clips and we never used them again and nobody bothered us about it. They didn't talk too much about it and it didn't disturb them.

We used to worry about the noise of the units when we put them on the outside, you know, the fan noise that was going to be going all night and driving people crazy. I used to worry about that and I don't think we've had one or two complaints except from someone who would complain about anything no matter where you put it. You'll get a few of those. Most of the manufacturers have been very conscious of this noise factor.

I've got one of those screwball houses where we pay $35 or $40 for electric service and I go around looking for motors. I've gotten so I look for a motor that's running. My wife's got an electric kiln, we have a couple of fish tanks, and she's got motors with pulsators and aerators and everything else running in the fish tanks and when I go around shutting things off at night you'd think there is a new surge of power that goes out on the lines. The noise level in a house can be pretty smooth and as long as its smooth and not harsh I don't think you're going to have too much of a problem. I think everybody is real conscious of it and they are doing everything they can to prevent it.

J. M. Farrell, York

How do people feel about room units as opposed to residential or central units?

Weiner (replying)

To be really fair, when you have a community such as we've built where we've sold them on the value of the better qualities, the virtues of the central air conditioning system, we would have a lot of trouble trying to sell people window units. This was pointed out to me in an argument not only by your salesman or representative, but by some of the people we spoke to.

On the other hand, I don't think that people are aware, given a free choice, of the advantages of the central system except that it is tucked away out of sight. I think this is the primary point on which people will buy the central system over the window units—the use of their windows and so on.

Now if you had said: "neatly packaged, thru-the-wall units, properly installed in various parts of the house," we could go to the mat but you did say window units so I'd have to say that the central system is much better.

A. E. Diehl, York

What is your opinion of winter humidity control?

Weiner (replying)

In the last three years I have become very strong in my feeling about it and I have beat Mr. Glazar until his few remaining hairs have come off his head to try to come up with some kind of a good functioning humidification system. I think increasingly in the middle class market and up the question of humidification during the winter, proper humidification and control, is a very important thing for comfort.

I find myself believing that one of the factors that causes this business of fresh air, you see, in the Spring or in the Fall, is based on this humidity control. I think that if we develop, as I said before, the total all-around piece of equipment or pieces of equipment, that we will begin to get the answer to that.

Dave Crawford, York

You spoke awhile ago about an adverse attitude toward circulating water systems. If it were possible for us to build a compact between the studs unit working on either chilled or hot water from the central compact unit which would cool or heat, humidify or dehumidify or bring in fresh air to individual room units, would this appeal to you?

Weiner (replying)

Have you also solved the condensation disposal problem? I'm assuming that you have solved that one too and that it wouldn't cost me more to put plumbing pans underneath these units and take off all the condensation from it and so on. Well, I think there would be favorable inclination toward it unless it was out of line cost-wise, except again—I don't know how you are going to filter the air, I don't know how you are going to remove bacteria and odors.

I don't know how you're going to humidify properly with it and you end up with a monstrosity of 14 or 15 pieces of equipment all designed to do one little function.

Octave J. Peppo, The Electric House, Inc., New Orleans

Getting back to buying a home, I think most families call this a big investment. In relation to central air conditioning or a window unit, which would best increase your investment in the home?

In other words, in relation to the question of which a person should buy, central air condi-

(Continued on next page)

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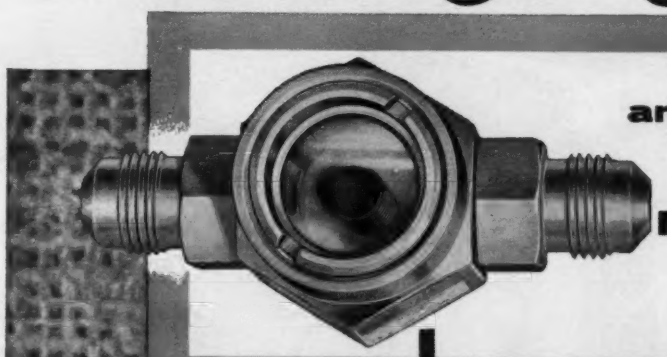

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Builder, Buyer Reaction to Home Cooling--

(Continued from preceding page)

tioning or window air conditioning, from the standpoint that the home is an investment—what would add to the value of your investment—the central unit or the window unit?

Weiner (replying)

There is no question that a central system, for mortgage purposes, would be considered certainly a favorable proper type of installation that would appreciate or depreciate with the house itself, whereas a window unit would be regarded as a temporary or make-shift installation.

Now the question would be, however, that if you do a through-the-wall job carefully engineered and entirely built into the house you would have something that would be more comparable to the central system by and large. There is no question in my mind that the central system is the answer.

A. B. Newton, York

In this question of residential air conditioning we have played around with it in our own family a little bit and I might mention one or two things that we believe, since Mr. Weiner's mentioned some. The first place we air conditioned was in 1937 and since then there's been one 4-month period and one 5-month period when we didn't have air conditioning in the house. So we do run back a little ways.

One of the real interesting things to me—we started off with the usual things, I think, that most people have when they first air condition their home, in that the rest of the family thinks that this is a gimmick, I guess. They aren't quite sure whether it's good or not. I'm in the business and I have to think it's good. So we started in.

First problem was to get the windows closed. But after two or three years, my wife wouldn't open the windows. Didn't want them open. If someone else did any time of day, they got closed. I finally sold that house. And in four years before I sold it I painted the storm windows on. And I've often wondered what the new owner did.

We moved to another house, and at that time, we'd had air conditioning six or eight years, and the need for air conditioning was for comfort. We wanted to keep cool. We had moved back to a warmer climate so—let's keep cool. One of the reasons I got it quickly was we were expecting our last youngster that summer and when it got hot under those conditions you kinda wanted air conditioning. So we got it, but the reason was comfort at that time.

I moved again, but it was interesting because for the first time comfort wasn't the prime reason for wanting home air conditioning. The various things that the family and wife mentioned after a little while I began to set down, just to keep track of them. And I thought them interesting.

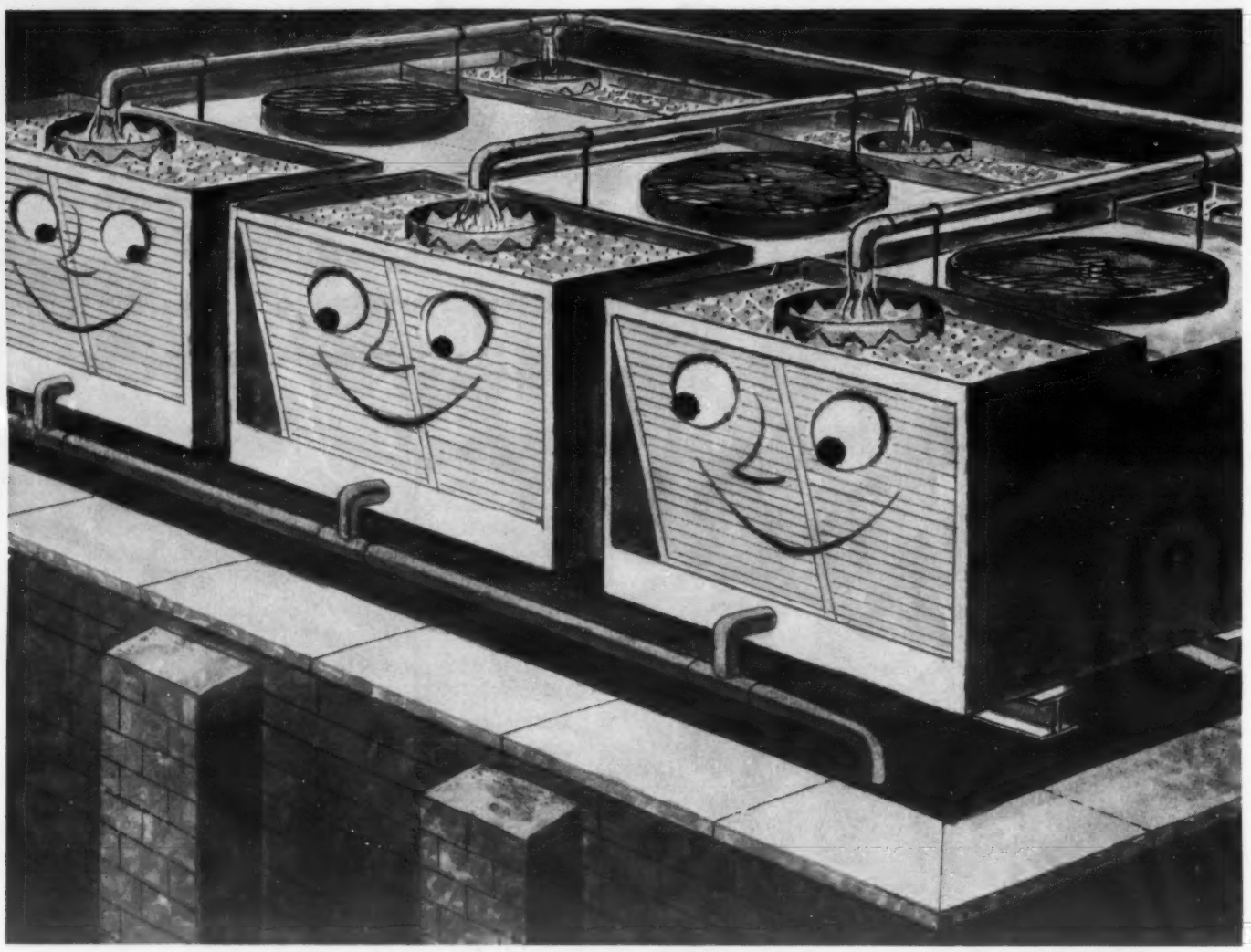
For instance, the bread molded. Well it hadn't been moldy for a long time. She forgot that ever happened. The crackers weren't crisp anymore. The salt got chunky in the salt cellar.

But the worst thing to her, then, was that she had to open the windows to keep comfortable. And there were two reasons why she didn't like to do this. One was that when she did (I guess our particular location was a very popular one in the neighborhood) she heard all the loud noises and cries of the kids and the neighbors' kids playing in the yard. Now she didn't mind this with the window down, she liked to have them play there but she objected to having so much noise in the house from that.

The other thing that she talked about was the fact that she had to remember to put the windows down if she went downtown, went away from the house for awhile, and a storm might come up. In fact, I know of occasions where she just walked away from the house in spite of the fact that she knew a storm was coming and never thought of putting the windows down. And when she came back it wasn't good. So those are just a couple of personal reactions to living with air conditioning.

(The End)

MEMBERS of the Special Register Manufacturers Committee of the National Warm Air Heating & Air Conditioning Association are pictured at their fourth meeting held at the Bismarck hotel in Chicago. The committee, authorized by the association's board of trustees, is developing uniform test procedures to be used by manufacturers of registers, grilles, or diffusers. Once formulated and approved by the association, the testing methods will then be used by each manufacturer to rate his equipment. Data will then be published by the individual register manufacturers and will contain an explanation and symbol identifying the data as having been obtained in the uniform, approved manner. Pictured above are the following members of the committee, left to right: Bernard Harshe, chief engineer, Lima Register Co.; Edward F. Steffner, chief engineer, Auer Register Co. and recording secretary of the committee; Harold E. Straub, research engineer, Titus Mfg. Corp. chairman of the committee; Robert J. Waalkes, product engineer, Hart & Cooley Mfg. Co.; and Gary Baker, assistant director of technical services of the National Warm Air Heating & Air Conditioning Association. Not in the picture, Andrew Lavela, assistant sales manager of Standard Stamping and Perforating Co.



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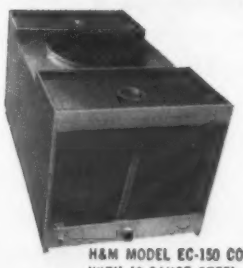
Use three Halstead & Mitchell 150-ton cooling towers!



H&M MODEL EC-150 COOLING TOWER WITH 10-GAUGE STEEL CABINET

How can three units be cheaper than one? Simple. Halstead & Mitchell packaged cooling towers come to you completely assembled and therefore less expensive to install. They operate at lower cost because there can be no wasted capacity; with step-control, you get capacity as you need it.

Furthermore, with "modular" units, you can place each tower near the equipment it's to be used with. This gives you closer control of water temperatures—another economy factor. Then, too, if one tower must be shut down, you can continue to operate the others.

The advantages go on and on: lower silhouette, lower rigging costs, and utmost flexibility—towers can be easily moved or supplemented as requirements change. And, like all H&M towers, these carry the exclusive 20-Year Guarantee on the wetted deck against failure due to fungus attack or rotting.

Contact your Halstead & Mitchell distributor for complete information on H&M cooling towers in 3- to 150-ton capacities. Or write Halstead & Mitchell Co., Bessemer Bldg., Pittsburgh 22, Pa.

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PATENTS APPLIED FOR

LEWIN-MATHES
COMPANY
DIVISION OF CERRO DE PASCO CORPORATION
ST. LOUIS 2, MO.

3/4" TYPE K

60 FT. COIL

NEW

SEE FOR YOURSELF

COPPER WATER TUBE

SOFT TEMPER

MADE IN U.S.A.

1. PULL HERE
IT'S PERFORATED

IT'S PERFORATED

Why lose expensive minutes on the job struggling with hard-to-open Copper Tube cartons?

The new Lewin-Mathes QUIK-OPENING Carton is designed for convenient storage, taking up a minimum of space.

Tube type, size and length are shown on all edges as well as the face of the carton for easy identification.

Protects against dust and moisture, too. The tube reaches you in perfect condition . . . every time.

Yet, there's no sacrifice of carton strength . . . no chance of the QUIK-OPENING breaking open in shipment.

There's no need to use a sharp edge . . . no chance of marring or damaging the tube.

See how QUICKLY and EASILY this sensationally new carton opens along the perforations!

SPECIFY LEWIN-MATHES COPPER TUBE, AVAILABLE NOW IN THE NEW QUIK-OPENING CARTON!

HERE
6. PULL UP HERE
HERE
7. PULL UP
8. PULL UP HERE
5. PULL UP
NEW
SEE FOR YOURSELF
4. PULL UP HERE
2. PULL UP HERE
3. PULL UP

As integrated specialists, Lewin-Mathes disciplines Copper to deliver it uniformly perfect as Lewin-Mathes Copper Tube. In 1950, Lewin-Mathes made Copper Tube easier to ship and store through the introduction of the HANDI-GRIP Carton, adaptations of which are in use throughout the industry.

Now, with the development of the sensationally new QUIK-OPENING Carton, Lewin-Mathes makes Copper Tube available in a package that's as convenient, trouble-free and time-saving as the product it contains. The Lewin-Mathes QUIK-OPENING Carton is truly a **disciplined** Copper Tube package.

QUIK-OPENING... the first basic improvement in Copper Tube packaging since Lewin-Mathes originated the octagon-shaped "Handi-Grip" Carton, now adopted by most of the industry.

NOW THE CARTON IS DISCIPLINED, TOO!

Specify Lewin Mathes Copper Tube in the QUIK-OPENING Carton for
Easy Opening • Sure Protection • Convenient Storage • Instant Identification

LEWIN MATHES

SAINT LOUIS, MISSOURI

MANUFACTURERS OF COPPER AND BRASS TUBE, PIPE AND ROD

Division of Cerro de Pasco Corp.

Demand for Air Conditioning Booming In Salt Lake City As Result Of Stepped Up Business Tempo In Utah, Idaho

SALT LAKE CITY — A stepped up tempo of business activity in Utah and Idaho has brought a snowballing demand for air conditioning, it is indicated in a report by Armstrong Supply Co., York distributor in this area.

Illustrative of this trend is the experience of Seashore's, Inc. in Brigham City.

In 1957, the Thiokol Chemical Corp. opened a plant in Box Elder county. While the company was building a new administration building at the 11,000-acre plant site, it set up temporary offices in all available business buildings in Brigham City and Tremonton.

Seashore's won the contract for many of these temporary offices as well as for cooling some of the structures at the plant site. During the peak of the 1959 season, the company used 50 men to make installations.

The Thiokol plant, which makes solid propellent fuel rocket engines for missiles, brought many new employes to Brigham City. They brought their heating and cooling problems to the pioneer sheet metal shop.

"We have enjoyed a very substantial growth," declared Carl Seashore, president, "and are looking to continued expansion as the community increases in size."

Associated with Seashore are his son Eric as general manager, Clair Knudsen as assistant general manager, Clyde Dower as sales manager, and Jim Winn as shop superintendent.

In Salt Lake City, Lloyd Soderborg of Engineering Sales Co. has just completed air conditioning a new office building that is built like a motel. Actually there are two buildings with 50 rental office units served by central reception, telephone system, and stenographic services. Visitors can park right in front of the office they are visiting, as in a motel.

Soderborg installed York Embassy water-cooled units with electronic air cleaning equipment and duct furnaces.

Utah Engineering Co., here has just finished air conditioning the home of Tom Kearns, president of the Salt Lake City *Tribune*. David Wood of Utah Engineering installed three units for air conditioning, heating, and electronically air cleaning the home's 14 rooms on two levels.

Utah Engineering also has installed four York Home Comfort Centers in each of two medical clinics to provide zone control.

Thompson and Sons Heating and Air Conditioning Co. is now in the process of installing approximately 25 tons of air conditioning in the main office of the Valley State Bank here. The company previously installed York equipment in the Union Branch of the bank.

In Blackfoot, Idaho, Jacobsen Fuel & Heating Co. recently completed installation of York low ambient, air-cooled Champion equipment at the Atomic Energy site in Arco, Idaho. Jacobsen also installed electronic air cleaning equipment to help control dust, which is a big problem with the intricate control system.

Armstrong Supply Co. has distributed York equipment in the two states since 1955. In both the last two years it received York's award of merit for the Pacific region for sales of commercial air conditioning equipment, according to Alan E. Huish, sales manager.

Paul W. Huish is president and James E. Newton, general manager.

IN SPITE OF COMPETING CURVES, this chart graphically shows how the current estimated 850,000 electrically heated homes are expected to grow by 100,000 by end of 1960. We are sure no one will object to the obstruction that hides the fact that way back in 1950 there were a lot fewer electrically heated homes.

Southwest Mfg.'s Newest Distributor Is In Newest State

AURORA, Mo. — Southwest Mfg. Co. here has announced the appointment of Hamada Refrigeration Sales Co., Honolulu, Hawaii, as distributor in our newest state for the "Heatwave" line of air conditioning.

Walter Hamada is general manager of the distributing firm, which represents many years' experience in the refrigeration and air conditioning trade, it was noted.

Southwest Mfg., a subsidiary of F. E. Myers & Bro. Co., Ashland, Ohio, reported that the Hamada organization "is only one of the many new distributors who helped double sales volume."

the HEAT theory

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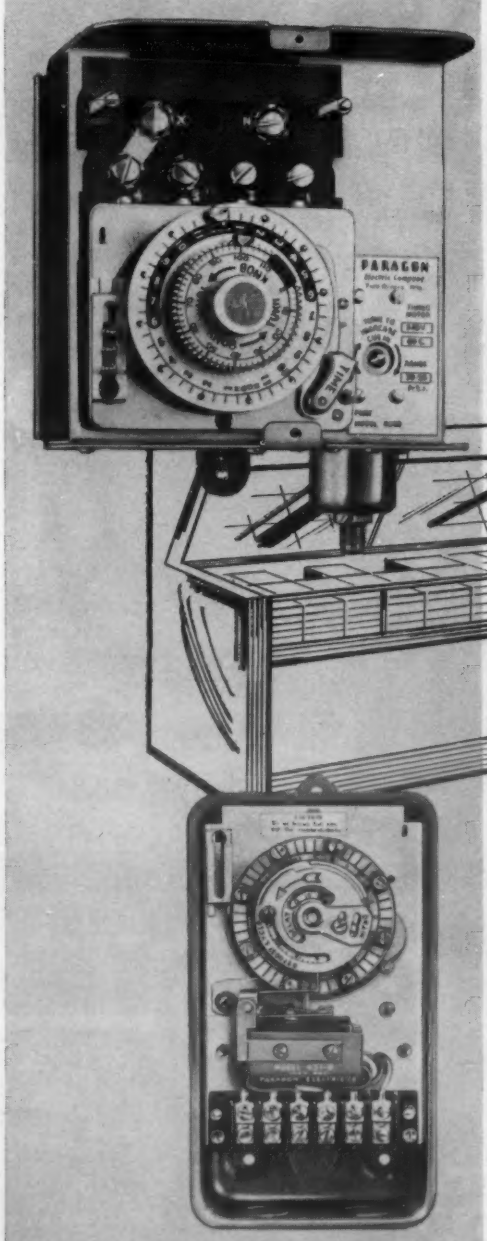
Far more Accuracy * Versatility * Dependability

in commercial defrosting with **PARAGON's...**



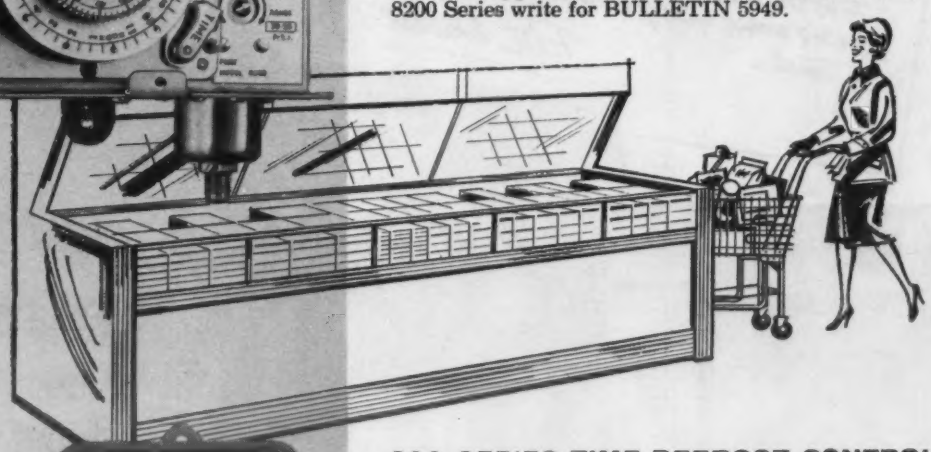
8200 SERIES D-FROST-O-MATIC—
designed for use as time-initiated, pressure-terminated defrost control

Ideal for electric heat and compressor shutdown defrosting. Defrosting periods automatically varied . . . frequency from one to six cycles per day.

A precision-built time control and pressure bellows, the 8200 Series is connected to the suction side of the refrigeration system by a copper tube. Length of defrost is not dependent upon a time cycle, but is terminated when the coils are free from frost. *No unnecessary downtime!*

Exclusive 100% adjustable fail safe. Will transfer switch if equipment is not brought back into a refrigeration cycle by an increase in pressure within a specified period of time. Pressure cut-in is adjustable too.

Powered by a heavy-duty, self-starting, 4-watt, industrial-type motor. For complete details on the 8200 Series write for BULLETIN 5949.



600 SERIES TIME DEFROST CONTROL—
designed for defrosting systems which require a timed fan delay or drain period at end of cycle

With the system-tailored 600 Series you can easily change the frequency of defrost and the length of defrost cycle to meet your load requirements. The time control is perfect for defrost systems having water spray, hot gas fan delay, or electric heat fan delay.

It has three adjustable settings — a pre-delay or pump-down cycle, a defrost cycle and a drain or fan delay cycle. Two dials: *bottom dial* controls frequency of defrost according to the time of day; *top dial* controls duration of defrost cycle by the three adjustable settings.

Frequency of defrosting can be set for every 3, 6, 12 or 24 hours.

The unit is powered by a 4-watt, heavy-duty, industrial-type motor. For complete details on the 600 Series write for BULLETIN 5945.

PARAGON
ELECTRIC COMPANY
1697 Twelfth St. • Two Rivers, Wisconsin
TIME IS MONEY... CONTROL IT WITH PARAGON

Standards for Heat Pumps?

Three Experts Agree on Need, but One Says 'Not Yet'

CHICAGO—Industry progress in setting up equipment standards for heat pumps—and some pointed remarks about the need for same—was aired in one of the seminars staged at the first National Electric House Heating Symposium & Exposition held here under the sponsorship of the National Electrical Manufacturers Association.

Discussions from the point of view of the trade association, manufacturer, and the utility were presented, respectively, by Frederick J. Reed of Air-Conditioning & Refrigeration Institute, R. D. Roley of General Electric Co., and James M. Foreman, Jr., of Duke Power Co.

Chairman of the seminar was L. E. Blades of Arkansas Power & Light Co., who is also chairman of the Edison Electric Institute committee on electric space heating and air conditioning.

Indicating that a certification program for heat pumps similar to the ARI program for unitary air conditioning equipment may be initiated by January, 1961, Reed, ARI's chief engineer, summarized some of the problems involved in setting up a standard covering such things as performance, capacity, rating, design, application, and safety.

"The heat pump has only relatively recently attained acceptance as a production unit for widespread application," Reed pointed out. "The possibilities of cycle arrangement, component design, controls, and other features are only just unfolding.

"To write, and require adherence to, a standard specifying what constitutes such equipment would be an unwarranted restriction on the resourcefulness and ingenuity of the engineers and others involved in the development of this equipment. Consequently, for the present, equipment standards for heat pumps should—and I predict, will—be confined to definitions, terminology, and safety requirements," Reed declared.

Revising ARI Standard

The present ARI Standard 240-57 for unitary heat pump equipment is now being revised, Reed disclosed, with revision scheduled to be completed this year.

Possible need for "northern" and "southern" standards for heat pumps was brought out by Roley, who is manager of product planning for G-E's Home Heating & Cooling Dept.

"The owner of a cooling unit in Phoenix should have some assurance as to what the device will do at 110° outdoors, and the owner of a heat pump in Kansas City is probably as interested in performance at 10° F. as he is in performance at 45° F.," Roley suggested.

It was suggested further by Roley that more power consumption information should be published by the manufacturer because it is so hard to pin down horsepower with hermetic compressors.

Although there is apparently question in some quarters about the maximum operating condition test now required of air conditioners and heat pumps, Roley indicated that the test does simulate conditions that can occur, especially in southern areas, after a system has been shut off for several hours or, as in a store or office, over the weekend.

This test requires the unit to operate continuously for two hours at 90% of rated voltage with a condenser air supply of 115° F. and indoor air across the coil of 95° d.b. and 71° w.b.

The probable need for more insulation in heat pump packages for improved summer and winter operation was also cited by Roley, who also emphasized that reduction in noise will become an increasing problem.

It is becoming essential for the industry to develop a nationally recognized standard on noise levels, or at least methods of determining same, in order to prevent the conflicts that may very well develop if each community sets up its own regulations regarding noise, Roley hinted.

Notes Heat Pump Problems

Speaking from the utility's viewpoint, Foreman, who is supervisor of Duke Power Co.'s residential promotion division, praised the heat pump but drew attention to specific problems.

"Utilities have observed that in the development of heat pumps the manufacturers have done a remarkable job in reducing size, weight, price, and efficiency," he declared. "Manufacturers have also, during the same period, increased the simplicity of design and the noise level. . . .

"Is it healthy to develop heat pumps without compressor mufflers, or with fixed speed indoor blowers, or one motor serving both indoor and outdoor blowers, or to reduce heat transfer areas, or to use propeller-type fans?

"No!" Foreman declared. "The general public has been sold on the belief that the electric heat pump offers the ultimate in a year-round heating and cooling system; one machine, all electric, which heats and cools automatically; which avoids the need for seasonal start-ups and shutdowns; which employs one duct system; a system which supplies air uncontaminated by soot or byproducts or combustion."

Instances of poor service on heat pumps, improper wiring which kept supplementary resistance heaters operating during the cooling season—at no small cost—and other problems were cited by Foreman, but he went on to point out:

Growth Figures Cited

"From the air-to-air heat pump's introduction in the early 50's the number of heat pump units, 2 hp. and larger, in several southeastern states had increased to approximately 5,400 units by the end of 1957. Eighteen of the 25 investor-owned combination and electric utilities, who are members of the Southeastern Electric Exchange, serve 4,200,000 residential customers.

"These utilities, located in 12 states from Maryland to Texas report that in 1958, 6,012 additional units were installed, or 112% of the total through 1957. In 1959, 7,566 units were added, bringing the number to 18,931 units, or an increase of 250% above the total installed through 1957. Sixty-two per cent of these units were installed in homes.

MEMO
TO: Ted Coon, District Manager
St. Louis Territory:
Ted:
Here's the Welbilt story that's attracting distributors all over the country.
New subsidiary, old hands, good facilities, on the move... definitely the line to watch.
A solid line - complete, guaranteed, backed by technical experts. No "fast buck" stuff...
we're here to stay.
Clean-cut marketing policy, protection for all resale groups, plenty of technical and promotional assistance... a high profit line for both dealers and distributors.
Particularly promising items illustrated.
That's the story thus far... a very solid one for my money. Glad you're with us. Will keep in touch.
Pete Dalton
WELBILT Self-Contained Air Conditioners
Commercial & Residential; 3 thru 20 Tons; Air or Water Cooled; Four Models.
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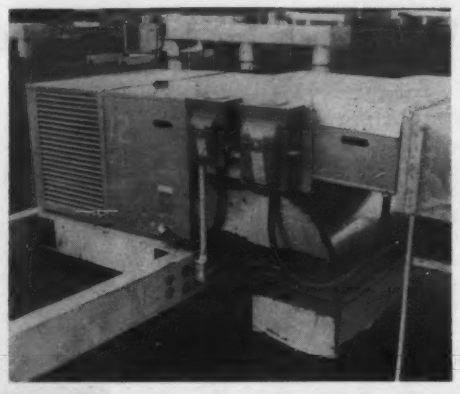
Commercial Air Conditioning

Sunnyslope

Heat Pumps Air Condition Total-Electric Shopping Center In Pacific Northwest



ABOVE: Close-up view of Mueller Climatrol heat pump installed on roof of a Sunnyslope Shopping Center building.

LEFT: Rooftop view of battery of heat pumps that serve the Sunnyslope Shopping Center. The shopping center is said to be the newest and largest total-electric shopping center in the Pacific Northwest.

* * *

SALEM, Ore.—What is said to be the newest and largest total-electric shopping center in the Pacific Northwest is climate conditioned by a battery of Mueller Climatrol heat pumps.

Sunnyslope Shopping Center was developed by the State Finance Co. of Salem at a cost of about $600,000. Sunnyslope covers more than seven acres of land and has 50,000 sq. ft. of retail store area under roof.

Construction is of pre-cast concrete walls, architectural brick front, roof is rib arch type with 1 in. of rigid "Fiberglas" insulation. Beams and joists are glue laminated.

Ernest Weber of Salem was the architect. D. E. Cooper & Son of Salem installed the heat pump system.

Each heat pump forms a "comfort zone" which contains two 14-in. adjustable ceiling diffusers and one 16-in. by 30-in. ceiling return grille.

Installation included the use of special bases to spread the weight of the heat pumps over the joist alongside of the arch, it was pointed out.

Here's the Mueller Climatrol equipment D. E. Cooper & Son installed: 20 self-contained 315-1-41 heat pumps, one 315-31 heat pump, 15 Mueller Climatrol supplementary electric resistance heating packages, and one 915-1-21 air conditioner.

Cooper also said that the firm will add another four 3-ton units to the center—making the project total 90 hp. of Mueller equipment.

The heat pumps will provide the center with complete year-round climate control. Even on mild days, when neither heating nor cooling are required, the heat pumps will provide filtered and circulating air at all times, it was pointed out in the announcement.

Multizone Units Air Condition 10-Story Headquarters of Tidewater Oil Co.

LOS ANGELES—All of the air handling units in the new World Headquarters of the Tidewater Oil Co. here have been provided by Recold Corp., the latter company announced.

This building is 340 ft. long, and 10 stories high.

The air conditioning features two Recold multizone units on each of the first six floors of the building. One unit serves the East and one the West wing of each floor.

The system is a chilled water, hot water system, with double duct construction. The hot and cold ducts, tapped off at each multizone unit, run down each main corridor. Each individual zone of the building is tapped and controlled off of the hot and cold ducts in the corridor areas.

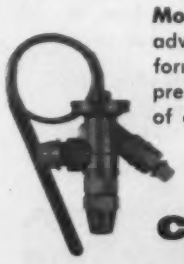
Two additional multizone units serve special areas of the building. The first air conditions the IBM room, and is controlled separately, so that it may be in operation 24 hours a day, without making it necessary for the entire system to be in operation for just one area. The second unit serves the mezzanine and storage rooms.

The exterior of the building features white marble, black granite, and stainless steel.

The building was designed by Claud Beelman & Associates, with C. L. Peck serving as general contractor. Air conditioning was by Air Conditioning Co. of Southern California.

Virtually any thermostatic expansion valve you call for is likely to be "right in your parts kit" when you carry A-P Model 209's. They adapt in seconds to so many requirements — pressure limit is adjustable *at twist of dial* to the exact value called for by the compressor manufacturer. No need to waste time chasing makes and types when these superior valves give your customers the safest overload protection available!

Exclusive pressure-limit control *instantly* presets from 10 to 55# gauge. Superheat setting can be varied from 2° to 20°F, if desired. Valve is designed to operate in any position, at any ambient temperature. *Nominal capacities*: ¼ through 1½ tons R-12 . . . ¼ through 3 tons R-22. Inlet connection *sizes*: ¼-inch SAE, or ⅜ x ¼-inch SAE. Ask for Model 209 valves at your A-P Controls wholesaler.



Model 207 thermostatic expansion valves offer outstanding advantages and quality recognized throughout industry. Performance similar to Model 209 valves, but without adjustable pressure limit. Can be furnished externally equalized. Choice of charges for different needs.

Creative controls for industry

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Well Water System Pre-Cools Entering Air In Phoenix Factory

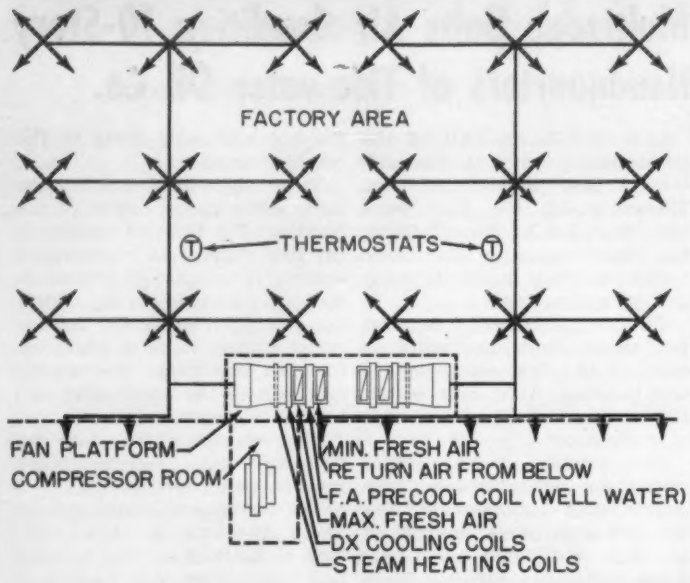
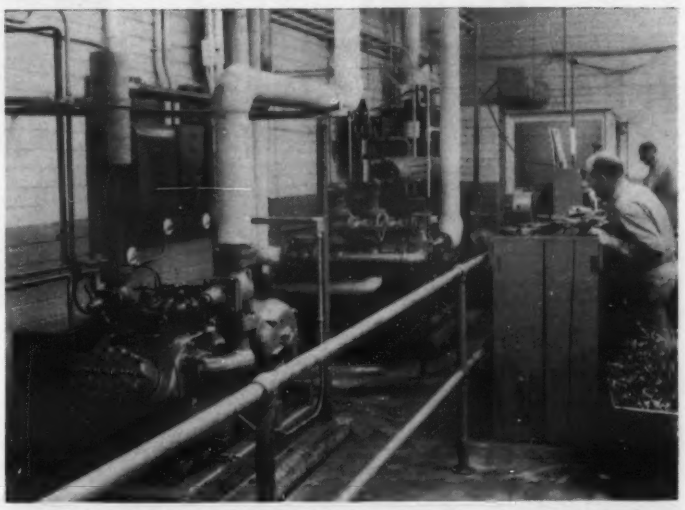


DIAGRAM of air tempering system shows use of pre-cool coil with well water.

PHOENIX, Ariz.—When the Garrett Corp. decided to establish one of the main manufacturing operations of AiResearch Mfg. Co. here, one of its principal operating divisions, it was one of the first semi heavy industrial operations to locate in this area. It was realized that complete air conditioning would be vital, but the management was more than reconciled to this—with the type of precision manufacturing that the plant does, air conditioning would probably have been a "must" no matter where the plant was located.

The AiResearch Mfg. Co. of Arizona produces turbomachinery products including gas turbine engines, pneumatic valves and controls, and nuclear and other advanced experimental products in the field of missiles and aircraft.



MACHINE ROOM view shows two of the 12 Worthington reciprocating compressors which provide 900 tons of cooling.

Of the plant's total of 660,000 sq. ft. under roof, most of which is air conditioned, approximately 200,000 sq. ft. in the main plant factory and office building is air conditioned by a system that includes 12 Worthington reciprocating compressors providing 900 tons of refrigeration, a well-water system for pre-cooling, and a steam boiler to provide low-pressure steam for heating.

Principal features in the system are in the use of well water and in the nature of the air distribution system. The well water, usually providing entering water at around 70° F., is used to precool the fresh air.

The well water is piped to the precooling coils with a by-pass in the line. Discharge from the precooling coils is used as condensing water for refrigeration circuit and discharged to the irrigation canal.

Blower units are located along the north and south walls of the plant and on the north and south sides of a mezzanine running east and west through the plant. Each zone blower unit is complete with individual refrigerant coil and steam coil circuit as shown in the accompanying drawing.

The air distribution system in the AiResearch plant air conditioning system works in the following manner. Return air enters the return plenum from below the mezzanine with minimum fresh air entering the plenum from the roof through a well-water precooling coil. At favorable outdoor conditions, 100% fresh air is admitted, by-passing the precooling coils.

All of the air then passes through a direct expansion cooling coil, and a low-pressure steam heating coil to the fan plenum. Operation of the heating and cooling coils is accomplished through thermostatic controls responsive to conditions in occupied plant areas.

The conditioned air is distributed by overhead ducts to ceiling type diffusers in the factory area or through high side wall registers to the mezzanine and first floor area below the mezzanine. Return air from the mezzanine area is taken through the corridor to stairways.

Exhaust fans are employed and are regulated to exhaust air volumes equal to the fresh air makeup.

Unsurpassed Quality at Regular Mill Prices

.010" O.D. to 1.25" O.D. Copper, Brass, Bronze

● Why play checkers jumping from one supplier to another for better "buys" and better quality? You'll find your ultimate answer in Precision Tubing.

Leaders in the refrigeration and air conditioning field have made comparison quality tests of Precision Tubing with other well-known tubing. The results proved only Precision Tubing rated "Excellent" in all four essential qualities of temper, straightness, roundness and size tolerances.

Precision Tubing is carefully tested and pretested in every step of production. Skilled craftsmen using modern drawing equipment and dies which are "quality-controlled" in our own shop assure Nth degree accuracy in every foot of tubing drawn. Electronically controlled annealing produces tubing to meet your most exacting specifications.

Whether it is tubing for condenser or evaporating coils . . . hard or soft thin-wall copper tubing, or capillary tube Precision has the quality answer at regular mill prices. Precision also makes round, rectangular, oval or square, preformed to special shapes . . . in copper brass, aluminum, nickel and nickel-alloys, Ni-Span "C", phosphor-bronze and nickel silver.

Let our engineers help you improve quality and save money. Write for full details to . . .

PRECISION TUBE COMPANY

NORTH WALES, PA. • PRECISION-EERS OF SMALL TUBING

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WINTER CONDITIONERS

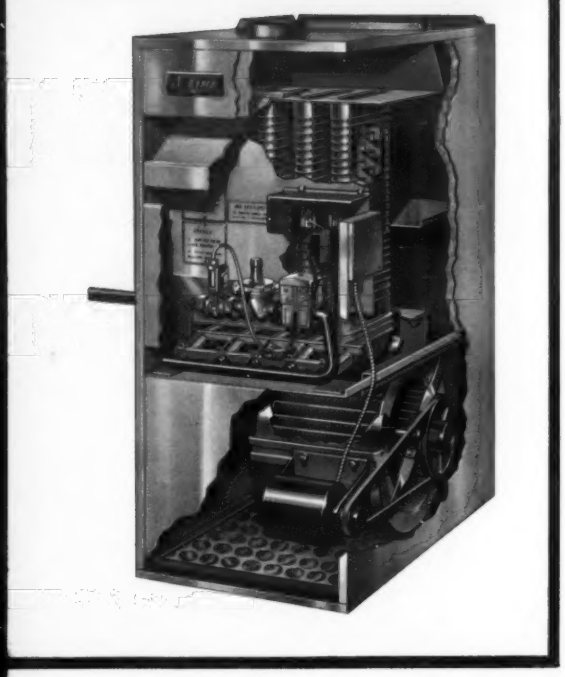
by JANITROL

the quality tells . . .

ANNOUNCING ALL-NEW

J-LINE pace-setter in heating

QUALITY · DEPENDABILITY · ECONOMY!



This cut-away view of the J-Line furnace shows the quality engineering design. Both belt and direct-drive models are available, in sizes from 65,000 to 12,000 Btu/hr.

NOW . . . every home can have true, quality heating at really rock-bottom prices! The new J-Line brings you the many exclusive features and complaint-free engineering that have made the Janitrol name famous for over 50 years.

You save in cost due to the manufacturing economies made possible by Janitrol's new high-production facilities. Also, the savings of modern design and the elimination of useless decorations are passed on to you.

Compare the J-Line feature for feature and dollar for dollar. You'll find the J-Line has many features not even offered in higher priced lines.

check these extra features

Slim-trim styling—compact, crisp modern cabinet design in warm, two-tone neutral colors that add richness to any home.

Compact—space saving—most models take up less than 4 square feet . . . give you extra floor area.

Quiet—balanced blowers are rubber-cushion supported for quiet air delivery.

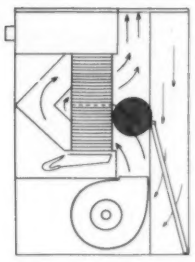
Unidrive blower—full capacity air delivery with lower power consumption . . . saves at least $5.00 per year!

Automatic controls—sensitive thermostat, pilot lighter, and operating controls are standard.

Efficient air filters—replaceable-type, to remove dirt and dust are included.

EXCLUSIVE

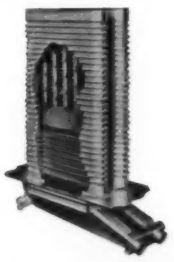
TWIN-PASS AIR FLOW



A Janitrol design exclusive! Air passes over heat exchanger *twice* before it is circulated, not just once as in ordinary furnaces. More heat is absorbed—greater heating efficiency and fuel economy result!

EXCLUSIVE

MULTI-THERMEX HEATING HEART



The radically different design giving extra years of service and economy. Corrugated heat exchanger walls speed heat flow into air stream. Ampli-Fire burners produce intense heat with clean, sharp ribbon flames—eliminate direct flame-on-metal contact, prolong furnace life.

Call WESTERN UNION Now!

Address Your Collect Wire to:

HARRY C. GURNEY, General Sales Manager
Janitrol Heating and Air Conditioning
A Division of Midland-Ross Corporation
Columbus 16, Ohio (In Canada: Wire Moffat's Ltd. Toronto 15)

JUST SAY—"Rush me full details on Janitrol Select Dealer Program"

JANITROL

HEATING AND AIR CONDITIONING
A Division of Midland-Ross Corporation
Columbus 16, Ohio • In Canada: Moffats Ltd., Toronto 15

Inside Dope

By GEORGE F. TAUBENECK

(Continued from Page 1)

costly travel charges on the part of servicemen.

This club also guarantees contractors payment of all members' charges, and even does a substantial portion of the contractors' bookkeeping.

Operational Details

It was necessary to screen nearly 2,000 applicants in order to acquire the more than 500 service contractors who back up the club's rigid standards for the Detroit club's 6,000 plus members.

Any population area of 75,000 or greater profitably can support a Home Owners Club operation, it is deemed.

Obviously such a club must serve both its contractors and members in order to be successful.

Therefore, it is emphasized that necessary qualifications include: integrity, patience, a zeal for conscientious hard work, and adequate capital.

A qualified and frugal operation may start earning a fair profit after six months. Profits should increase considerably later, because most satisfied members will renew.

(Renewal history is reported to be over 90%.)

Inquiries may be directed to: The Home Owners Club, 14976 Schaefer, Detroit 27, Michigan.

People Can Be Batty

One job came HOC's way a while ago which defied billing, bookkeeping, or any other form of reasonable handling.

About midnight, fellow by the name of Ray Daneman called to report a bat in his basement.

Two officers of the club, unable to locate a Bat Removal Service in their catalog, departed with haste to Mr. Daneman's home—armed with what seemed to be the likeliest tools of their newfound trade—tennis rackets.

Within 45 minutes, and after two sets of fantastic lobs and rusty backhand shots, they dispatched the bat to his Permanent Radar Field.

Back in the office, tired but proud, they discovered that there was no established charge for bat dispatching, either by the hour or by the bat. So they chalked their game up to experience.

Money isn't everything, we are told, but the loss of a $3,000 ring simply can't be taken lightly.

An HOC member spent a placid Saturday several weeks ago cleaning out his eave troughs.

After completing the job he was understandably concerned to discover that just such a ring had been lost during his perambulation around the upper periphery of his home.

A call to HOC received the prompt attention of two sympathetic workers, a roofer and a plumber.

In half an hour, while one plumbed the mysteries of the pipes, the roofer located the ring in the troughs.

Cost for recovery of one $3,000 ring—$10.

Money can be recovered in several ways, sometimes even before it is spent.

Mrs. Henry Dolecki called HOC to tell them she needed a new picture tube in her TV set. (The initiated will recognize this approach as little short of formally issuing a license to steal.)

The HOC TVman soldered a wire. Charge, $4.50.

The set now is doing nicely, thank you.

A frantic call came from HOC member Mrs. Herbert Robinson. She had locked herself out of her home, which wouldn't have been so upsetting were her nine month old baby not inside.

Within eight minutes an HOC locksmith arrived at her home. By this time, however, her husband also arrived with a key.

The locksmith reported that Mrs. Herbert Robinson's day had been hectic enough without adding it to a bill for service not rendered, so he refrained from submitting one.

Another phone call offered an excited but strangely straight-faced exchange:

"I need a caterer right away, this afternoon, in fact. You see, my daughter is announcing her engagement."

"Well, caterers aren't a normal service of the club, but I'm sure we can locate one for you. Is the caterer to prepare the food?"

"Oh no, the cook will take care of that."

"You just want them to serve, then?"

"No, the cook and one of her friends will do that."

"I see, perhaps you want them to mix drinks?"

"No, no, the cook's husband will tend bar."

"Park cars?"

"Our street is wide enough for the guests to park their own cars at the curb."

"Well, perhaps you really don't need a caterer?"

On thinking this over, our excited member agreed. She was more shook up about the "announcement" than was her calm daughter.

Stories of the Week

An elegant waiter from a Hilton dining room took his boy to a zoo for the first time. They watched an attendant toss a hunk of meat into the lions' den.

"Disgusting," said the son. "Why doesn't he serve the meat with good manners, like you do in the restaurant?"

"Confidentially," explained the waiter-father, "lions are lousy tippers."

In England an American high school principal traded notes with the headmaster of Eton.

"May your boys smoke?"

"No," established the Etonian. "Drink?"

"Never!"

"How about dates?" continued the American.

"We don't object, if they don't eat them between meals."

"You should have called us at once," chided an investigating detective.

"Surely, when you came home and found contents of your bureau drawers scattered on the floor, you must have known thieves had been there."

"No, I merely assumed my husband had been looking for his cufflinks."

Add Definitions

Misunderstood Wife: The lady who phoned her husband and asked him to bring home a quart of lacquer.

Middle Age: When your wife tells you to pull in your stomach and you already have.

Maturity: The ability to be comfortable with people who are not like us.

Final Thought

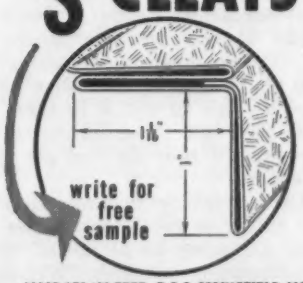
It is false to imagine that creativity just happens. It doesn't rain on anyone from blue heaven. The capacity to be creative is inherent in human beings, but the utilization of the capacity is hard work. Creativity is work that goes some place; it is sustained effort toward an ideal.—MICHAEL DRURY.

Looking for a Business to Buy . . . ?

Check the Business Opportunities Section in the classified advertising columns.

erect ductwork easily with

STANDING "S" CLEATS



PRICE PER 100 FEET—F.O.B. SPRINGFIELD, MO.

GAUGE	100-999 FT.	1000-4999 FT	5000 FT OR MORE	EST. WT./FT
26	$7.30	$6.20	$5.90	.453
24	9.80	7.90	7.40	.578
22	10.50	9.00	8.50	.703

GALVANIZED – 10 FT. LENGTHS ONLY

PM

PAUL MUELLER COMPANY

P.O. BOX 150 – SPRINGFIELD, MISSOURI

WHAT 7 THINGS HAPPENED RECENTLY AT FRICK COMPANY* IN WAYNESBORO, PENNA. ?

7 important things for FRICK *and you:*

1. First of all, on a foundation of our 107 years' experience, our new management has established a growth policy that stresses new product development, quality control, and expansion of field services.

2. New branch offices are being opened and the sales-engineering staffs of existing branches as well as of the home office are being increased.

3. A compressor of new design is being developed. This, like our current dependable line, will handle a variety of refrigerants such as Freon, ammonia, propane, butane and carbon dioxide.

4. A new circulating system using refrigerated sea water has been introduced to commercial fishing fleets, at a saving to boat owners.

5. Completely insulated Shell-Ice makers have been "packaged" for convenient field installation.

6. Service to the growing poultry industry has been highlighted by our new counter-flow-continuous poultry chiller, which uses refrigerated water instead of ice.

7. As part of the growth policy, we are increasing the number of Frick distributors. Some of our distributors have been with us 50 years.

All of which indicates one thing: Frick is "on the move!" If you're passing through Waynesboro this summer, stop in and see for yourself; you'll be able to enjoy our remodeled and air conditioned offices.

FRICK COMPANY
Waynesboro, Penna.

*Pioneers in depend*ability* since 1853: air conditioning, refrigerating, ice making and quick freezing equipment, power farming machinery and portable sawmills.

Hiring, Compensating Salesmen

Before You Hire One Have a Sales Plan, Desk Space, and Clerical Help—Here Are Some Tips on What Kind of Man He Should Be

By Ray F. Horan, Director, Institute of Dealer Management, Janitrol Div., Midland-Ross Corp.

We are willing in this industry to do absolutely everything under the sun to improve this business . . . except hire salesmen. And I know, because I tour this country and talk to dealers by the hundreds.

I also know all the reasons and all the excuses which the dealer offers as to why he won't hire a salesman. And they're all phoney.

The dealer says that today you can't hire salesmen because men can make a hundred dollars a week working in a factory and the selling profession doesn't pay them this kind of money quickly. They say: "How can you hire a man to go out and do retail selling when a truck driver can earn himself a hundred dollars a week running a truck?"

They say that the economic status of America no longer condones the commission salesman. Furthermore, they say, the present generation is unwilling to work.

Other dealers say that because of old age pensions in the new economic era in which we live you can't get people to do the kind of work that they used to do.

Well, gentlemen, five years ago I couldn't have refuted these statements. But today I can. Because in the past two years my company, as a part of its "select dealers program," has been hiring salesmen for dealers. We have been running ads for salesmen. We've been talking to salesmen. We've been hiring them. We've been screening them. We've been training them. And we've been putting them to work. And, surprisingly enough, they are selling merchandise.

I'm going to destroy for you every cockeyed excuse that you've got for not getting salesman and building and expanding your business. I've discovered in the past two years that the same newspaper ads which I ran 20 years ago will still bring in substantial recruitments for sales jobs.

I find that these men, the type of men we are seeking, are not interested in working in a factory for a hundred dollars a week. They're not interested in driving a truck for a hundred dollars a week.

These men are interested in doing something different. They're interested in doing the same kind of things that retail salesmen were interested in doing 20 years ago and 40 years ago.

Practically everything in America has changed in the last 20 years, gentlemen, excepting human nature. And that hasn't changed at all.

Every thinking man in this industry today is willing to admit that the future of the heating business is in the field of summer cooling. Now, you can sell a certain amount of heating by "gravity," and that's what we've been doing. There's a certain number of purchasers every year who will rise up, call on the phone, and demand that we come out and sell them a new heating plant.

But your future is in year-round air conditioning, which this nation will have in spite of you, or in spite of me.

If You Don't Prepare To Sell Cooling, Somebody Else Will Do It

We can drag our heels as much as we want to. The American public is going to live better. They're going to have year-round air conditioning. They're going to live in filtered, purified air. This is one of the improvements in the standard of living for the American public. And they're going to have it.

And if you and I don't get prepared to sell it to them, they'll buy it from the gas station, if they have to. They'll get it. They'll tear it out of the guts of American industry, because they're getting sold on this thing.

They're ahead of us today. The American public is more ready to buy air conditioning . . . summer air conditioning, and year-round air conditioning than we are to sell it to them.

So now we come up to the question of how do you get a salesman?

Let's start by understanding one thing. A great many salesmen are going to be needed in an expanding industry. Within the next two to three years we'll see literally hundreds of retail salesmen coming into this business.

Now, if we are going to hire a salesman, we ought to start first, as dealers, to put our own house in order.

There are certain things that we have to do before we invite

One of the features of the 46th annual convention of the National Warm Air Heating & Air Conditioning Association in St. Louis was a symposium on "How To Obtain Competent Sales Personnel."

Subjects and speakers were "Why You Need Salesmen," Newt T. Hess, vice president in charge of sales, Vorys Brothers, Inc., Columbus, Ohio; "Hiring and Compensating Salesmen," Ray F. Horan, director, Institute of Dealer Management, Janitrol Div., Midland-Ross Corp.; "Training the New Salesman," W. Edward Bogen and John Mensel, vice president and sales manager, respectively, Bogen, Inc., Columbus, Ohio.

Condensed versions of these presentations, together with questions asked of speakers and their answers, will be published in the NEWS in instalments. The first article appeared in the March 7 issue.

OWNERS AGREE: A '60 CHEVY IS WORTH MORE BECAUSE IT WORKS MORE!

"THIS '60 CHEVY MAKES EVERYTHING EASIER FOR US—IT'S THE BEST RIDING AND HANDLING TRUCK WE'VE EVER USED!"

Walter Otto, Watertown, Wisconsin, contractor, uses a 1960 Chevrolet Fleetside pickup for a big trucking job. Off the road most of the time on rough terrain at building sites, the truck hauls cement blocks, bricks, concrete, insulation—everything it takes to build a house. "This '60 Chevy does everything for us," Mr. Otto says, "and makes everything easier. It's the best riding and handling truck we've ever used—a lot smoother on the bumps. You're not bounced all over the seat like you are in other trucks. And the big body carries a lot of building supplies, saves trips. The cab's roomier, too. You don't feel all crowded in like you do in other trucks."

■ They're speaking right up, these owners of '60 Chevrolets, talking about a new truck-and-tire-saving ride that leads to shorter trip times, too. Chevy's independently suspended front wheels step right over bumps, virtually eliminate most of the severe impacts that can wear out trucks and tires before their time. You profit by a big savings on maintenance; get a bigger daily work output because these trucks float you over rough roads with fewer slow-downs. New Chevy cabs are built to last longer, boost driver efficiency. There's more leg room, head room and hip room than ever before, new visibility that's greater by more than 26%, new foam-padded seat, new tougher construction features—double-panel roof, box-section door pillars and many more. Efficient power that knows the most about saving money. The standard 235-cu.-in. Thriftmaster 6, for example, America's most widely used truck engine with 135 h.p. and dollar-saving components. Or efficient short-stroke V8 power, optional at extra cost. Look into it for yourself; Chevy's totally new working ability is at your dealer's right now. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

1960 CHEVROLET STURDI-BILT TRUCKS CHEVROLET

a guest into our house. Yes, if we have a guest coming to our house, someone that's going to come and live with us, or be with us for a while, we get busy and do a few things. We get another quart of bourbon and we change the sheets on the guest bed. But at least we've got to do something.

Give Salesman a Place To Hang His Hat

So let's not try to hire a salesman and throw him into a dirty, filthy shop and office with no provision to take care of him. Let's treat him with a little respect. Let's start out by dusting off a corner of the shop, and I mean the shop, or a corner of the basement, or a corner of the showroom, or some place, and get him a desk. Give him a place to sit down, and also a place to hang his hat and coat when he comes in in the morning. It's just amazing how many dealers in America don't have a hall-tree or a hatrack.

Sitting Behind Desk Bolsters Morale

Let's give him a desk, if it only costs 10 dollars. Let the man have a place to sit down. We're not going to let him sit very long. We're only going to leave him sit there for 30 minutes a day. But make him feel like a man while he's there. If you want to know how pompus a desk will make a man feel, just sit behind your own sometime all by yourself and look out your office or shop.

We've been teaching salesmen for years that when they go in to call on a man in his office, they should never sit down and talk to the fellow across the desk. Because he's a stuffed shirt when he's behind his desk.

We teach salesmen to pull the chair around to the corner of the desk so that the man has to look over and talk to them off the corner. Then all the stuffing goes out of him, and he talks to the salesman just like he would talk to you if he were visiting out at the club.

Now, if this works in the sales calls, why can't we work it in reverse? If we do it on the sales call in order to take the starch out of the shirt of the prospect so that he can be talked to, let's do it in reverse and give our salesman a desk so that for 30 mintes a day he can sit behind this desk and put starch in his shirt, and feel that he is a big businessman.

Salesman Feels Abused

He goes out and takes the abuse of the public all day long and half of the night. He comes home and catches hell from his wife because she knows no man engaged in a legitimate business would come home at this hour of the morning. So he eats breakfast without conversation. Now this poor guy comes down to your place of business, and he hasn't got a place to sit down or hang his coat. This is not morale building.

Let's put our house in order. Get him a 10 dollar desk. Let this man feel like a businessman for 30 minutes of his day. He hasn't got anything to do at the desk. He pulls open the drawers, gets out a bunch of cards and receipts and shuffles them just like he was the president of the company. He shuffles the papers and he looks important. He gets up, puts on his hat and coat and walks out and he's a new man. He can tackle the world, and sell, and make money for you.

Give Him Somebody To Type Proposals

Now, we also want to arrange for this fellow to have somebody type a letter for him. He wants to make out a proposal. You know what happens in the average place? He goes out and works pretty hard for three, four days, and he gets himself a prospect to whom he wants to submit a proposal. He comes back into the office and goes to the girl, and he says (he's all excited, all wound up, all full of emotion) "Would you make out a proposal for me? I've got to have it. I've just got to have it. I've got to get it to the guy by four-thirty this afternoon."

The girl says, "Don't bother me. The boss told me to get out the bills before I did anything else. Don't bother me. I can't do anything. You come back and see me on Wednesday, and I'll make out your proposal for you."

Well, this woman has ruined this man's life. This fellow says, "What kind of a business is this? I go out here and I do the dirty, nasty end of this business which the boss is too proud to do. I go out and call on strangers. I kick in doors, beat the public up and down the back and finally get a prospect, and come in here and can't get a letter written."

So, while we're setting up our house, let's arrange to get the guy set up so he can get a letter written.

Now, how do you do it? You tell the girl in the office, "I want you to know that this man represents a great deal of money to us. This fellow is the most valuable asset that we've got under this roof, believe me. He's the only thing that we own or possess that can create new business, and make business grow where no business grew before. And this man's future is in your hands, Lillian. I want you to be kind to this man. And I want you to be pleasant to him. And I want you to help me be his sales manager.

"Because every time that you say a cross word to this man, every time that you neglect to assist him, every time that you show a disinterest in his business, you are not only taking money out of this man's pocket, but away from his wife and three children, Lillian. I would like to have you realize that you are also taking money out of that family."

Then we've got to have a sales plan for him. God knows, if you're going to hire a salesman, and you can't tell him what he ought to do, he won't have very much confidence in your organization. So, you'll have to tell him how he will work and what he is supposed to do. Not every week, but every hour. You tell him how he works, what hours he spends creating prospects.

You tell him what hours he spends making surveys, and what hours of the day and night that he spends closing sales and making presentations. You've got to have a plan.

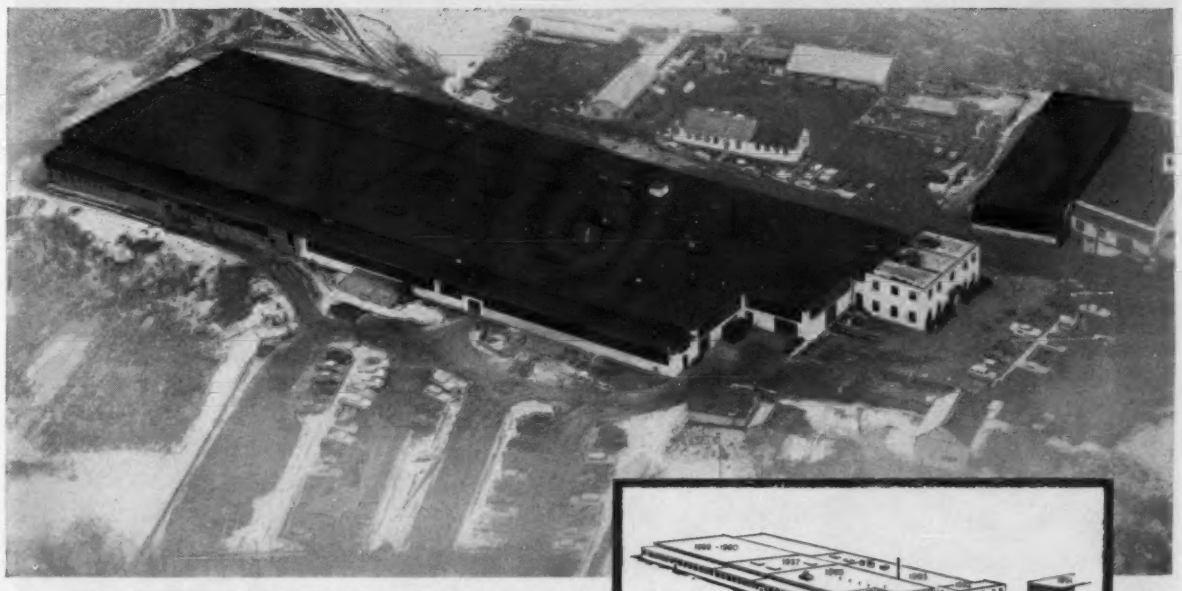
And don't throw him into a town of 100,000 population and say, "Well, you've got a big town, Buddy, go on out and go to work." Don't tell him he's got a big territory, but let's start with two square blocks, something he can understand. So let's give him a territory.

If you've only got one salesman, you don't have to give him all the town. Give him a piece of it that he can live with.

You've got to have a plan. If you haven't got a plan, your

(Continued on next page)

SET FOR THE SOARING SIXTIES



AERIAL VIEW OF KENSICO TUBE (above) shows modern plant with new addition nearing completion at top left of photo. Inset (right) Kensico's year-by-year growth.

PACE-SETTER during a period of phenomenal growth in northern Westchester County, N. Y. Kensico Tube is Mt. Kisco's largest manufacturing business. Products include: hard and soft copper water tube; copper air conditioning, refrigeration and instrumentation tube; and copper tubing for propane gas lines, heat exchangers, automotive and industrial applications. Now, after more than a decade of corporate growth and expansion of production and marketing facilities, Kensico is set to meet the challenge of the SOARING SIXTIES.

IN 1950, CONSTRUCTION of first new building was started. Kensico had been chartered under N. Y. State Law in 1945. Under present management since 1948. Until 1951, company was located in an old cider mill which it leased (floor space 8500 sq. ft.).

TODAY, AFTER PUTTING UP 4 MORE ADDITIONS, Kensico has more than 60,000 square feet of modern fireproof plant and office space.

BY SPRING, 1960, Kensico expects to complete a new 40,000 square foot addition to the plant. Total plant and office space will then exceed 100,000 square feet.

PRODUCTION HAS INCREASED with each addition since 1950. It will be still further increased in both capacity and range of sizes by the new 1960 addition.

IN THE TEN YEAR PERIOD, 1950-1960, Kensico has had a 7-fold growth in gross sales.

EFFECTIVE FEBRUARY 1st 1960, Kensico Tube Company Incorporated, Mt. Kisco, N. Y., merged with Robinson Technical Products, Inc., Teterboro, N. J. Robinson also has other corporate facilities at Hingham, Mass., and Santa Monica, California. The merger strengthens Kensico's position in engineering and metallurgy and places new technological know-how and experience at the disposal of Kensico's customers. Kensico's new name is KENSICO TUBE COMPANY DIVISION — ROBINSON TECHNICAL PRODUCTS, INC.

Kensico Tube
COMPANY DIVISION
Robinson Technical Products, Inc.

MOUNT KISCO, NEW YORK

Kensico Products are also Available Through Warehouse Distributors and Sales Representatives in Cambridge, Mass.; Middlebury, Conn.; Buffalo, N. Y.; Lindenhurst, N. Y.; Goshen, N. Y.; Roselle, N. J.; Philadelphia, Pa.; Flourtown, Pa.; Pittsburgh, Pa.; Cleveland, Ohio; Detroit, Mich.; Evanston, Ill.; St. Louis, Mo.; Milwaukee, Wisc.; Durham, N. C.; Berwyn, Ill.; Ft. Lauderdale, Fla.; St. Petersburg, Fla.

Hiring, Compensating Salesmen--

(Continued from preceding page)

prospective salesman loses interest in you because he says, "If this guy don't know how the job should be done, how can I? I'm a total stranger to the business." So you've got to have a plan.

Then, of course, we have to have a method of remuneration. We have to have a method by which we will pay this fellow. And let's not give him a choice. He came to you for guidance and direction and leadership. Let's never flounder about this. Before we talk to him, let's make up our minds. I don't care what the system is, but you have to have a system of remuneration prepared. But at least, let's have a program that we can sit down with this fellow and explain to him how he works, when he works, what he does, and how he gets paid.

Now, when we've got this all straightened out in our minds, we've got our house in order. Now we can look for a salesman.

Now, you're just kidding yourselves if you start looking for a salesman that you don't have to train. Dealers by the hundreds have said to me, "I'll hire a salesman. Find me a good one."

What constitutes a good one? Most dealers would like to hire a salesman who has all the qualifications that the dealer has. And, brother, when he is that good, he don't have to go to work for you. The dealer wants a guy who can create a prospect, who can lay out the system, who can engineer the job from soup to nuts, who can figure it, and then to go out and supervise the installation, and in case you're short of installers, jump in and pick up the tools and finish the job. This is the average dealer's idea of a salesman.

Well, first of all, this is not a salesman. This is a dealer.

You Will Probably Have To Go Outside Industry

You are not likely to find the salesman for which you are looking within our industry. There are all too few of them to start with. And you just might as well give up the idea that you're going to pick off a good salesman who will work for you and make money for you, who has all the training and experience that you'd like to have him have.

So, you're going to have to go outside of the industry. If you are thinking about trying to jockey some guy away from your competitor, you probably won't get very much. If he is really good, the competitor won't let him get away. And if he isn't any good for the competitor, what good will he be for you?

Now, what kind of a guy are you going to look for? It's pretty obvious that every kind of a man doesn't fit this kind of business.

In our company we have been able to build what we call a "weighted" application blank. By studying several hundred people, nationally, who sell in this business, we have been able to uncover some of the important characteristics that seem to be common among successful sales people in our business.

Middle Aged Man Is Your Best Bet

We find, for example, that age is an important factor.

Young men, as a rule, do not succeed in our business. The young salesman who succeeds in this business has got a touch of genius in him. I don't know whether that makes him a good salesman for you or not because he'll probably have gone into business for himself before you get a chance to capitalize upon his ability. We find that the most successful salesman in our business are the men in their early middle age, or middle age.

College Men Do Not Work Out Too Well

Then, we find that the question of education is important. We don't want any eighth grade graduates. And we don't want any college men. The statistics and research on this thing proves beyond any question of a doubt that the very best bet for a man in our kind of retail selling is the fellow with some high school education, or a high school diploma.

Another common characteristic of the man we're interested to know is his stability and ambition. We want to know that he has reasonable stability, but that he is not so stable that he hasn't got any ambition.

We're interested in his social attitudes. We find that the fellow that belongs to seven clubs and spends 30 hours a week in club activity is not a good man in our business. He never gets around to getting his mind on the job. On the other hand, we find that the salesman, or the man who reaches middle age and has nothing to do with community activity, generally speaking, is kind of anti-social.

10 References Help To Establish Character Better Than Usual 3

The next thing we want to know: is he honest? What's his character?

Well, our application blank is a little different from many. Our application blank calls for 10 references. This is based on the assumption that the old application blank with three references has been a failure.

Every stinker in this world has got three friends that will lie for him. But practically nobody in this world has got 10 friends that will lie for him. If you don't believe it go home and count up your's tonight.

But now we come to the difficult characteristic to be evaluated. How much of a dynamo has he got in him?

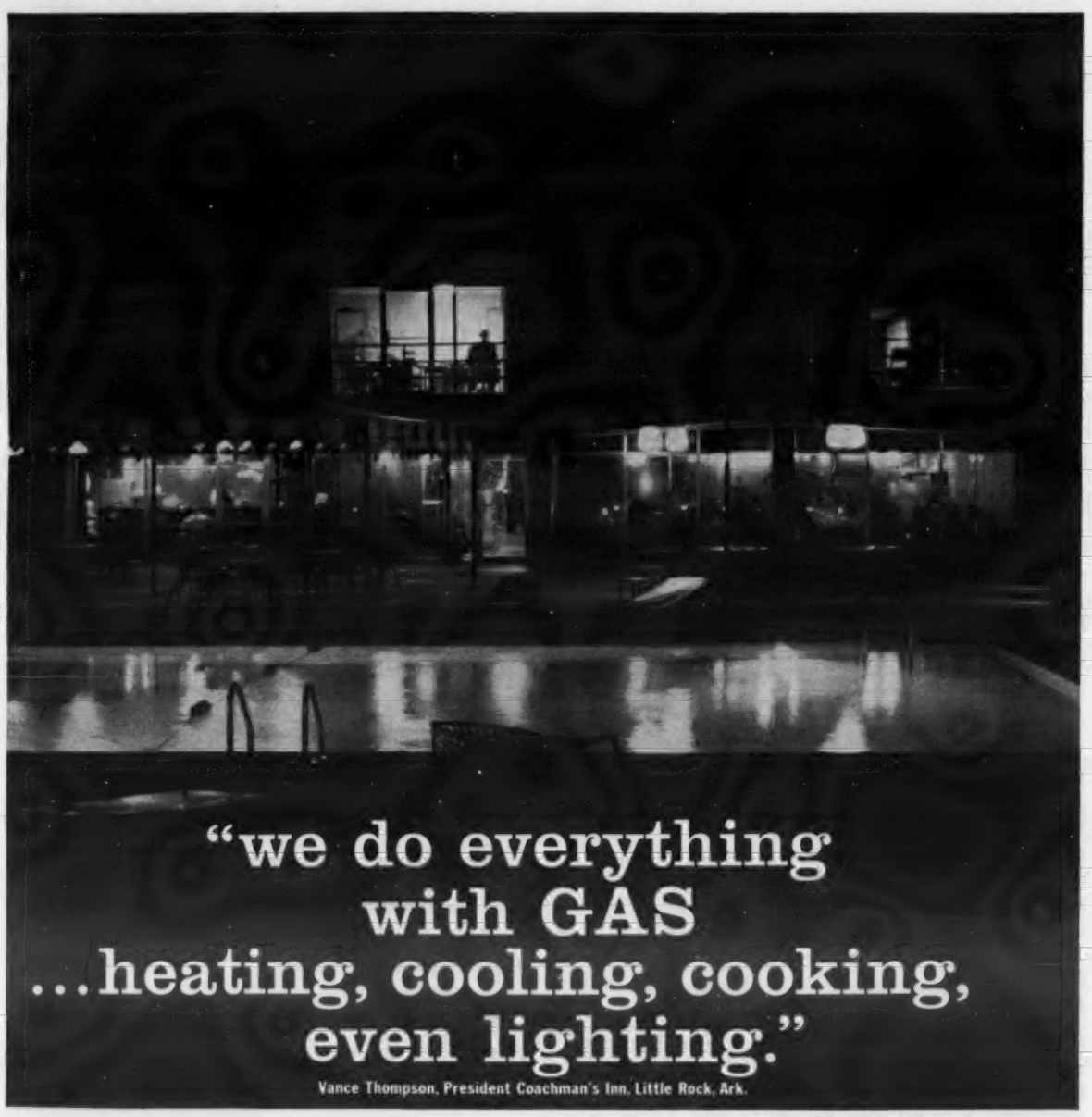
Well, to tackle this one, we use a psychological test.

A psychological company in Columbus worked with us for months to develop what we believe to be the first psychological test ever developed specifically for the retail sales mind in the heating/air conditioning business.

Now, what do we find out with this type of psychological test? We were able to put our finger upon one element in this guy you couldn't find out any other way.

Our psychologist, after nine months of studying what goes in to make up a retail heating salesman concluded that one of the most important factors, is that which we call his "activity rate." This psychological test will fish this out. And I don't know any other way to find out whether the guy will or won't get off from his chair.

(To Be Continued)



The new Coachman's Inn...a 258 unit downtown motel in Little Rock . . . is the last word in ultra-modern convenience and comfort. In the words of satisfied guests, it has everything.

And everything there that depends on fuel depends on GAS, the most flexible modern fuel. Even the electricity used at the Inn is produced by a gas-driven generator!

Year 'round air conditioning for the Inn starts at a gas-fired boiler. In summer this boiler furnishes the source of energy for a series of Arkla-Servel gas absorption cooling units. In winter the same gas-fired boiler heats the Inn.

Air-conditioning is only part of the job for gas at the Coachman's Inn. Gas cooks the meals. Heats all water, including the swimming pool. Illuminates the decorative Arkla Gaslites. And, in gas flambeaux, adds a dramatic touch to the beautiful Sunken Patio.

No wonder the owners say, "We do everything with GAS." If you plan to build or modernize any building, check the efficiency, flexibility and economy of gas. Gas absorption cooling can put your heating plant on a year 'round paying basis.

For specific details, call your local gas company, or write to the Arkla Air Conditioning Corporation, General Sales Office, 812 Main Street, Little Rock, Arkansas. AMERICAN GAS ASSOCIATION.

FOR HEATING, COOLING, COOKING ...GAS IS GOOD BUSINESS!

Quiet...

WAGNER Polyphase Resilient Mounted Motors in ratings through 10 horsepower

Quiet, vibration-free performance is essential when motors are installed in areas where noise must be held to a minimum . . . in hospitals, churches, schools, office buildings, restaurants and similar locations where quiet is needed or wanted.

Such installations have created a need for larger polyphase motors that whisper while they work. Wagner has met this need by expanding its line of polyphase resilient mounted motors to include standard ratings through 10 hp.

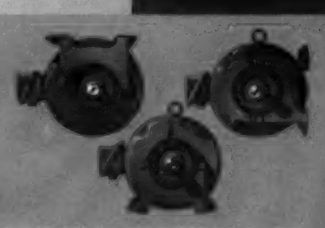
You certainly have applications that call for a smooth running motor, cushioned by resilient mountings. To make sure they're quiet, specify Wagner Polyphase Resilient Mounted Motors. Only Wagner can provide an entire range of ratings through 10 hp.

Constant research and development have kept Wagner up front in electric motor design for more than 65 years . . . made the name Wagner one you can depend on in choosing electric motor drives.

Your nearby Wagner Sales Engineer can help you select the right motor to meet your requirements. There are Wagner branch offices in 32 principal cities.

Wagner Electric Corporation
6400 PLYMOUTH AVENUE, ST. LOUIS 33, MISSOURI

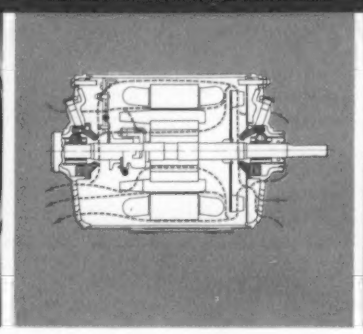
SLEEVE OR BALL BEARING.
These motors are furnished with quiet running steel-backed babbitt-lined sleeve bearings of high load carrying capacity. Ball bearings can be supplied when desired.



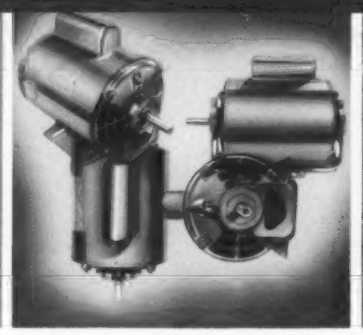
CEILING, SIDEWALL OR HORIZONTAL MOUNTING.
You can mount these motors on walls or ceilings by rotating the cradle base 90° or 180°. Motor stays dripproof.

NEOPRENE CUSHIONING RING.
Annular mountings, of oil-resistant neoprene bonded to steel rings, cushion the motor in its cradle base to absorb the small amount of vibration that remains in the most carefully balanced motor.

Quick Break Switch. The starting winding is disconnected from the line by this Wagner designed switch . . . test proved to make more than a million breaks. (That adds up to two starts per hour for 50 years!)



Efficient Cooling System. The improved ventilating system used in these motors directs a large volume of air through the motor to effectively reduce temperatures and add to motor life. Cross section indicates direction of air flow.



All-Angle Operation. The sleeve bearing design, in fractional hp ratings, has a positive lubrication system that permits operation in any position . . . can mean important savings in motor costs to manufacturers.

Quick Connect Terminals. Brass tabs on terminal studs permit quick, easy connection of leads . . . cut wiring time to speed assembly line production. Simply press the lead receptacle on to the stud—a positive connection is assured.

NO STARTING PROBLEMS with WAGNER CAPACITOR-START MOTORS

Pack more power into less space...give long troublefree service...are easy to hook up

Here are general purpose single-phase motors that have high starting torque and high pull-in torque. When used in the proper application and supplied with voltage close to their rating, they'll give positive starts every time. Troublefree operation is assured . . . thanks to the positive action of the Wagner governor mechanism and long life quick-break switch.

Wagner Type RK Motors pack more power into less space. Small enough to fit in tight spots, their ruggedness is built-in . . . permits direct mounting. And, sleeve bearing fhp models can be operated in any position. They are available in a range from 1/6 through 5 horsepower, with sleeve or ball bearings, and with rigid bases or resilient mountings.

Get these motors from leading motor distributors in your city, or from Wagner sales offices in 32 cities across the country. Your Wagner Sales Engineer will be glad to help you select the right motor for your application. Wagner Bulletin MU-217 gives full details on Capacitor-Start Motors.

Wagner Electric Corporation
6400 PLYMOUTH AVENUE, ST. LOUIS 33, MISSOURI

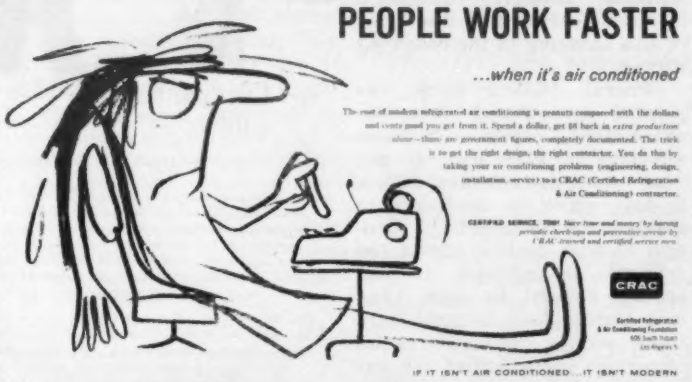
WM60-12

Cooperative Advertising, Promotion Plan

Los Angeles Contractors Expand CRAC Program To Sell More, Better Cooling Jobs

LOS ANGELES—With a successful year's operation behind it, the CRAC (Certified Refrigeration & Air Conditioning Foundation) promotional program has been expanded for 1960, both in terms of an advertising and promotion budget, and in the concept of what will be promoted.

CRAC is fundamentally the cooperative effort of a group of established air conditioning and refrigeration contractors, employing trained journeymen who are union members, to "sell" the value of their experience and competence to businesses who buy and use air conditioning and refrigeration equipment, and who have a definite need to have it maintained properly.



TYPICAL OF ADVERTISEMENTS that appear in the Los Angeles daily newspapers and the West Coast edition of *Wall Street Journal* is this one emphasizing economies gained from increased employe efficiency with air conditioning.

Members Report Man Hours Of Employes Has Risen And Leveled Off

The individual dealer-contractors who formed the original membership of CRAC strongly believe that the program has been beneficial to their individual businesses, and new members have been attracted. There would seem to be one important piece of tangible evidence of its effectiveness: employment records for the certified contractors under the union contract for Los Angeles and Orange Counties in 1958 showed that December, 1958 man hours were 20% under man hours for the 1958 peak month of July. In 1959 man hours for December were 5% higher than for the top month of July, 1959.

Heavy Emphasis on Preventive Maintenance

One reason for this may be the heavy emphasis that was placed on "preventive maintenance" and the desirability of users entering into service maintenance contracts in the first year's promotion. Those directing the CRAC program felt that this objective (making users conscious of the importance of service and maintenance) was achieved so well in the first year of operation, that this year the emphasis will be on the value of installing *modern* air conditioning and refrigeration equipment.

Journeymen Rejoining CRAC Member Firms

Another accomplishment of the CRAC program in its first year was that a rather substantial number of journeymen joined or rejoined the work force of CRAC contractor members instead of operating as "lone wolf" cut price competitors.

With a substantially larger budget to work with in 1960, the CRAC program is able to go into publication advertising on a broader basis, and the *Los Angeles Times*, the *Los Angeles Examiner*, and the West Coast edition of the *Wall Street Journal* are being used fairly extensively.

The theme of the advertising message is to increase, in investor's and businessmen's minds, the value of advertising. The thinking is also that the more the many benefits of air conditioning are understood, the higher will be the standards and budgets provided for new installations.

A typical advertisement says that "tenants stay longer and pay higher rents in air conditioned buildings." Other copy will talk about increased efficiency of office and factory staffs, the benefits of less dust and less noise, the decrease in labor turnover. A slogan which will be repeated again and again is "If It Isn't Air Conditioned, It's Not Modern."

Many of the advertisements and some of the promotion pieces used in the campaign during the past year carried the names of all of the CRAC members. One mailing piece sent out last year perhaps expressed best what the campaign was driving at in the following copy:

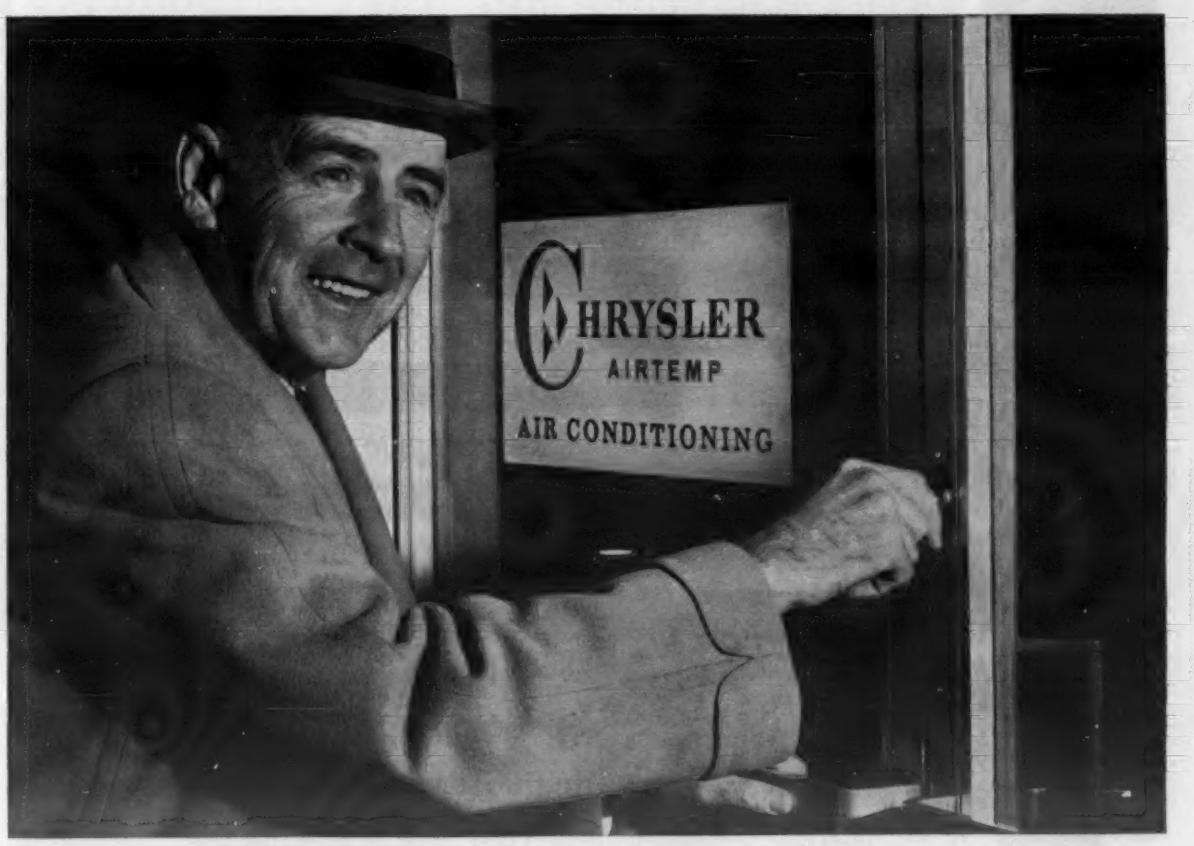
"It has, they say, happened that a man in for a medical check-up gets by with flying colors—then drops dead on his way home. It could be that your refrigeration system will start acting up 10 minutes after the best serviceman in the business has checked it. But not often.

"Fact is most failures are preventable through preventive inspection and maintenance . . . if the inspection and service are in the hands of a qualified man who has an interest in doing the job right. He is your best bet for good maintenance.

"He is employed by the contractors who are part of the CRAC service foundation, he and the leaders of his craft have joined with them to set up the first training and certification program of its kind in

(Continued on next page)

Sell Climate by Chrysler



Dealers who sell Chrysler Air Conditioning . . .

enjoy more prestige

Prestige comes in two varieties: The kind you earn by sweat of brow. And the kind that rubs off on you when you're with someone who's already earned it. Both can be yours when you sell Chrysler Air Conditioning.

Chrysler has long been one of the most respected names in the air conditioning business. It's almost synonymous with engineering superiority. Our famous name helps you sell.

But we're not going to tell you, "If you sell Chrysler Air Conditioning you can forget about working." You know—and we know—there's no substitute for hard work. But we do say the Chrysler name and product line make it easier for you to earn, and hold, the best reputation in town.

If you're interested in nine more reasons why your future is safer with Chrysler, send for the booklet, "It will pay you to take a long look ahead . . . with Chrysler Airtemp."

CHRYSLER AIRTEMP

Airtemp Division, Chrysler Corporation, Dept. H-40A, Dayton 1, Ohio

Please rush me a copy of the "Long Look" Booklet

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ COUNTY _____ ZONE ____ STATE ____

CRAC Program Growing--

(Continued from preceding page)

America to assure you of the best service for your equipment.

"He is a thorough-going professional (not a salesman); he has put in more years of training than many a young MD who hangs out his shingle. He is the man to service your system. It's no job for the janitor, the handyman, or the amateur."

Then another page says "How Do I Get Prices and Details?"

"Any contractor in the CRAC Foundation will help you with your service and maintenance problems. Each has his own policies and plans for service. Not all of them cover all areas, and some specialize in particular types or kinds of equipment. Some limit their service to equipment they have installed.

"Those who specialize in service and maintenance will compete freely and vigorously against each other for your business; and any CRAC contractor who feels that his facilities and policies do not meet the requirements of your particular problems will refer you to one, two, or a dozen contractors who may be able better to serve you.

"Any CRAC contractor will gladly furnish you with a complete recommendation or several alternative plans for preventive maintenance, service, or emergency repair. Each, by his cooperation and contributions to the Foundation and the joint training program, has demonstrated his determination to see that refrigeration and air conditioning in Southern California shall have the finest service facilities in the world."

Ken McNeill of McNeill, McCleery & Cochran, advertising agency which has prepared the advertising and promotion used in the CRAC campaign, has helped to develop and guide the thinking behind the program, and in a talk before the national RACCA convention late last year he described some of this thinking in the following manner:

General Motors Corp., he pointed out, found that the automotive service business amounts to $176 per car per year—several millions of dollars a day, which is necessary to support the thousands of General Motors dealers across the country. In addition to the service dollars, he said, General Motors feels it must have these service customers as an important ingredient of new car sales, so they are spending a budget of several millions on service advertising.

"Me? I'm digging a ditch"
"Me? I'm building a Cathedral"
WHO WILL DO THE BETTER JOB?
Out of medieval times comes the old tale of workmen side by side at the same job... with vastly different goals in mind. And because it is still true today, the cathedral builder is our man. We want the man who aspires to be the best in his field, who carries a dream with his tool kit. We want... and we get... not a man to "fix" refrigeration and air conditioning equipment, but one who understands the full measure of responsibility of protecting foodstuffs, medicines, comfort, and life itself.
He is the Certified Refrigeration Air Conditioning journeyman, a CRAC journeyman for short. He does a CRAC service job. He spends more time in training, in classroom schoolwork learning his craft than a graduate engineer spends in school. He earns his right to wear the CRAC symbol by passing tests that would flunk most Ph. D's.
He is your enduring assurance that your refrigeration and air conditioning equipment will be installed with skill, and maintained in good conscience and good faith for better performance at far less overall cost.

OLD TALE points up CRAC workman's attitude toward job and emphasizes how the customer benefits from this philosophy.

"In our own business," McNeill told the contractors, "an identical problem and opportunity exists. We too have the problem of sustaining service prices that will continue to spiral. If we have an abundance of well-informed and friendly customers, we will have no price-cutting, and we will have some profits. To accomplish that in Los Angeles, we have developed a full-fledged, top-quality advertising program.

Advertising Objective Of Program Explained

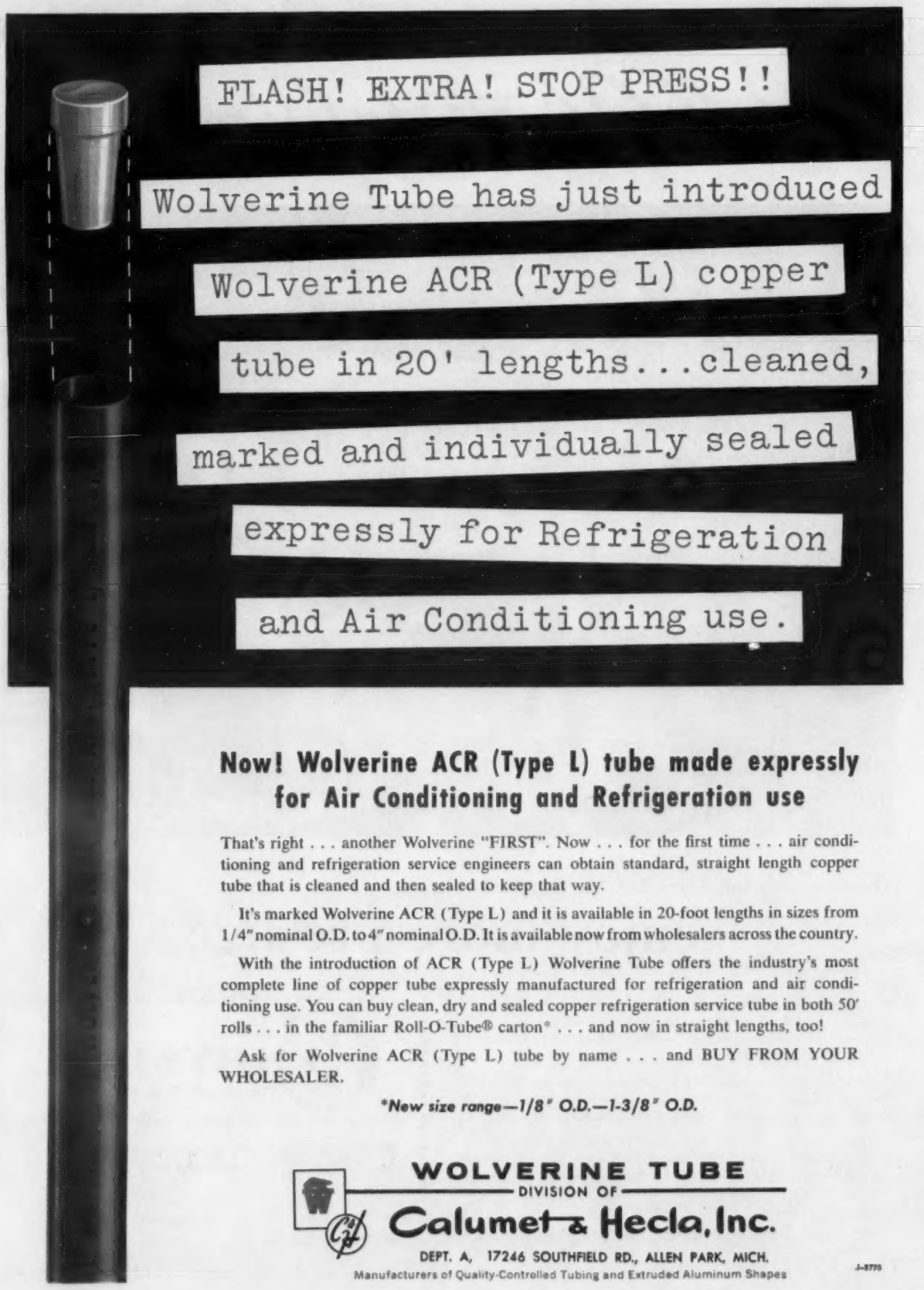
"Our advertising has the broad objective of establishing a favorable climate for the growth and the profits of all aspects of the air conditioning and refrigeration industry. We give special emphasis to service because it is more competitive and because it is more interesting to more customers.

"Because we are promoting the services, facilities, and reputations of nearly 150 contractors, we need a central spokesman for the group and a strong trade-mark with which to identify ourselves. As this spokesman, we have established the Certified Refrigeration & Air Conditioning Foundation, which shortens to CRAC and makes a good trade-mark around which all advertising is built.

"Our CRAC advertising is based on a clear understanding of a clear and simple problem—how do we charge sufficiently high prices to make a profit, and at the same time expand our businesses, and have completely happy customers?

"First, we start with enough marketing research to learn what makes a good customer good and a bad customer bad. We have learned that one major reason separates good customers from poor ones—it is simply a matter of attitude about the *importance* of our service.

"A customer who regards maintenance and service as really important, regards it as a bargain, and he is a good customer. The customer who classifies us with the men who fix typewriters and pencil sharpeners thinks we are robbers who do consistently slovenly work, and he quite naturally resists our prices and turns to other


FLASH! EXTRA! STOP PRESS!!
Wolverine Tube has just introduced
Wolverine ACR (Type L) copper
tube in 20' lengths...cleaned,
marked and individually sealed
expressly for Refrigeration
and Air Conditioning use.

Now! Wolverine ACR (Type L) tube made expressly for Air Conditioning and Refrigeration use

That's right . . . another Wolverine "FIRST". Now . . . for the first time . . . air conditioning and refrigeration service engineers can obtain standard, straight length copper tube that is cleaned and then sealed to keep that way.

It's marked Wolverine ACR (Type L) and it is available in 20-foot lengths in sizes from 1/4" nominal O.D. to 4" nominal O.D. It is available now from wholesalers across the country.

With the introduction of ACR (Type L) Wolverine Tube offers the industry's most complete line of copper tube expressly manufactured for refrigeration and air conditioning use. You can buy clean, dry and sealed copper refrigeration service tube in both 50' rolls . . . in the familiar Roll-O-Tube® carton* . . . and now in straight lengths, too!

Ask for Wolverine ACR (Type L) tube by name . . . and BUY FROM YOUR WHOLESALER.

**New size range—1/8" O.D.—1-3/8" O.D.*

WOLVERINE TUBE
DIVISION OF
Calumet & Hecla, Inc.
DEPT. A, 17246 SOUTHFIELD RD., ALLEN PARK, MICH.
Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

J-8770

PROMINENT among the ideas emphasized in the CRAC campaign is the one of keeping modern as represented by the advertisement above.

* * *

service sources and methods if he can.

"The way to convert people is to establish your subject as really important, warn them of the consequences if they don't conform, convince them you're their friend and savior and that, therefore, your services are cheap at any price.

"One of the ways we do this in CRAC advertising is to establish refrigeration—both for product and comfort—as one of the three services essential for conducting any business—on the same plane with telephone service and electricity. The only difference is that the phone and power companies provide, included in their rates, an enormous service and maintenance program—but the user of refrigeration equipment must establish his own service resources or suffer the consequences.

"To make our point we suggest that maybe our customer would like to have his phone rates reduced by 10%. It sounds like a great idea until he realizes the lower rate would be without maintenance. Who would be so silly as to buy phones or light without preventive maintenance service—and who'd be so silly as to rely on luck to keep their equally important air conditioning and refrigeration equipment operating efficiently?"

When the Lights Go Out Somebody Else Worries, But . . . . . .

A direct-mail folder that was sent to 10,000 important businesses carried out this theme, stating simply that when the lights go out somebody else worries about getting them on again—but that "you're a dead pigeon if you don't provide for your own refrigeration maintenance service."

In addition to the publication and direct mail advertising, the CRAC program has recognized the importance of other means of contact with customers. A sales portfolio that puts the CRAC story in orderly, believeable form is made available for use by every employe who may have contact with a customer.

The CRAC trade-mark is supplied as a decal for use on trucks and for application to all equipment serviced by members. Embroidered trade-marks are made available for mechanics' shirts. Electros and mats are supplied for use in local or telephone book advertising, on stationery, invoices, or in any way that a CRAC endorsed contractor meets the public.

230 Attending Evening Classes To Gain 'Certified Journeyman' Status In L. A.

LOS ANGELES—A total of 230 journeymen who are seeking certified journeymen status this year, are going to evening classes provided by the Joint Training Committee of the Refrigeration industry.

This training prepares the men for examinations to be held this summer. After they pass, the journeymen are then qualified for a period of a year as certified refrigeration journeymen. As a result they receive premium pay of 25 cents an hour above the scale.

Coordinator Harry L. Bowe said classes are being held at Fullerton in Orange County, and in Los Angeles and Van Nuys in Los Angeles County.

Last school year of 1958-59, maximum enrollment was 275 journeymen. The examination last summer was taken by 200 of which 172 passed and were certified.

These 172 are now getting the premium pay.

Bowe said the attitude of both journeymen and contractors toward the certified program is improving.

Response from the contractors is that the certified journeymen are doing good work and are maintaining good communications with the customer for their employer.

Cost per customer has not gone up because the program has equipped the journeymen to do more and better work, Bowe said.

Utility Appliance Appoints Two

LOS ANGELES — Richard Petersen has been appointed chief engineer in charge of research and advanced development engineering for Utility Appliance Corp., it was announced by S. F. Skafte, director of engineering.

Petersen, who has been with Utility since 1939, will be responsible for the development of new products relating to Utility's Gaffers & Sattler product division's current line. He will continue to supervise engineering programs for the company's blowers and evaporative coolers.

At the same time, Skafte announced the appointment of Jerome Pinkus to the newly-created post of chief product engineer for heating and air conditioning. Pinkus has been with Utility for the past nine years.

American Standard Division Purchases Phoenix Distributor

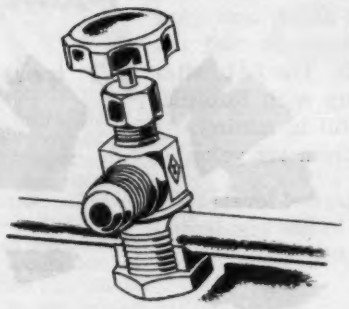
PHOENIX, Ariz.— Air Control Sales Co. here, wholesale distributor of American-Standard heating and refrigeration equipment, has been purchased by the Air Conditioning Div. of American - Standard of New York City.

Irving L. Polett, founder and president of Air Control, has been appointed southwest district representative of American-Standard's Air Conditioning Div. with headquarters here.

Distributorship of American-Standard equipment, handled exclusively for several years by Air Control, will be taken over by Amstan Supply, 1510 North 21st Ave., an American-Standard division.

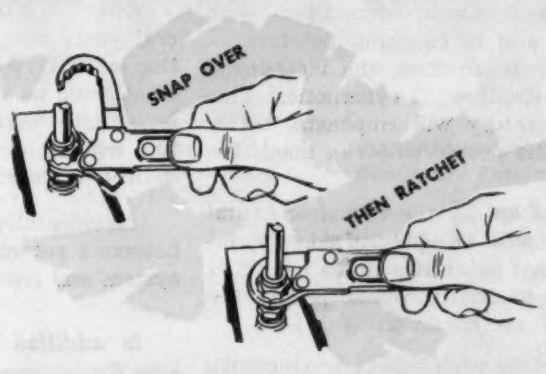
IMPERIAL REFRIGERATION SERVICE

IDEA CENTER



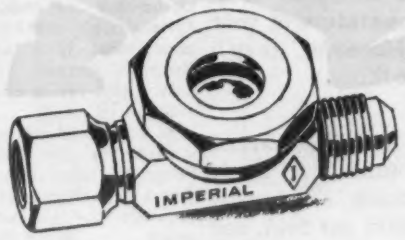
FASTER TUBE TAPPER—FOR CHARGING, TESTING OR PURGING!

One economical piercing valve fits four sizes of tubing — 3/16", 1/4", 5/16" or 3/8". A double lead thread provides fast operation. Ideal for servicing hermetics or other applications where it is desirable to tap into a tubing line.



RAPID RATCHET SPEEDS WORK— GETS INTO CLOSE QUARTERS!

Kwik-Tite ratchet wrench makes close-quarter work a breeze, needs only 30° handle movement to get a new grip. Wrench can be used for making up tube fittings or countless other applications. Slips right onto hex and locks in place.

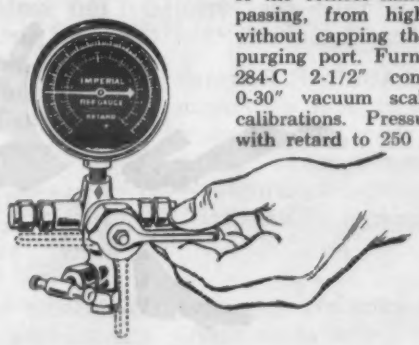


"MAGIC EYE" SIGNALS WHEN SYSTEM NEEDS CHARGING!

Magic Eye liquid indicator spells out the answer. When refrigerant system is fully charged, word "FULL" appears. It disappears when there is an insufficient amount of refrigerant in system. Available with flare or solder connections.

SINGLE GAUGE SHOWS BOTH HIGH AND LOW SIDE PRESSURES!

When connected to both sides of system, the Hi-Lo Charging and Testing Unit permits reading the pressure on either the high or low side with a single gauge and a single valve. A simple turn of the control handle permits bypassing, from high to low side, without capping the charging and purging port. Furnished with No. 284-C 2-1/2" compound gauge. 0-30" vacuum scale in one-inch calibrations. Pressure to 100 lbs. with retard to 250 lbs.



WIN

$5.00 CASH AWARD

Send us your ideas, tips, short-cuts using Imperial refrigeration products—anything that makes your job easier. Every idea we use wins $5.

IMPERIAL

17-60

THE IMPERIAL BRASS MANUFACTURING COMPANY
6300 West Howard Street, Dept. ACHR-40, Chicago 48, Ill.

Gentlemen:
Send me Catalog No. 82 and Bulletin 3113 covering: Magic Eye Liquid Indicator, Hermetic Piercing Valve, Hi-Lo Charging and Testing Unit, Kwik-Tite Ratchet Wrench.

NAME.....
COMPANY.....
ADDRESS.....
CITY.....STATE.....

Here's Your Big Chance to Help Advance Your Business and Profession

(Continued from page 1)

but the well-being of all mankind—now presents itself. All you have to do is sign a check.

A significant program which will delve into the effects of atmospheric environment on human comfort and well-being has been launched by the American Society of Heating, Refrigerating & Air-Conditioning Engineers. In the past, ASHRAE in its own Cleveland, Ohio, laboratory has done considerable work along these lines. Improved and more intensive investigations in the future should yield more of the pertinent information that is needed.

From this "pure research" will come a wealth of information on how properly tempered air improves comfort, increases productivity, abets happiness, and boosts profits.

Take, for example, that vital matter of increasing labor productivity.

Thus far the productivity factor (so urgent in our economic competition with the Russians and in checking inflation)—has been approached from the mechanical aspect . . . automation . . . cybernetics. This Cleveland laboratory will emphasize better output from the people who *run* machines.

Data turned up by these environmental investigations will be directioned, for instance, to fit that point at which a projected increase in productivity would justify the installation of air conditioning.

Simultaneously with human productivity tests, the laboratory will be carrying on a similar program to measure the effects of temperature-humidity conditions on capacity to learn. This affects not only our schoolchildren, but the crucial situation *re* servicemen apprentice training.

How much heat energy does the human body give off under varying conditions? To the agencies which are striving to put an American in orbit around the earth or on the moon, a solid answer will affect the design of that vehicle in which our Astronaut will travel and hope to survive.

As a first step, the ASHRAE Research Laboratory designed and built a "human calorimeter" for the Navy. The Mercury Astronauts all have been tested in it. The lab now is designing another calorimeter—this one for the University of Missouri—for animals.

Purpose of these complex, expensive instruments (the Navy's cost about $160,000) is to measure how much heat a man (or animal) gives off or absorbs by convection, radiation, and sweating, through an impressive range of temperatures and humidities.

It also indicates what extremes a man can tolerate, both in heat and cold, under different kinds of stress. The calorimeter already has been helpful in substantiating a new medical theory as to how the brain responds to temperature changes. For the heating and air conditioning engineer, AND SALESMAN, this research is anything but academic.

Despite the millions of fans, blowers, heaters, and condensing units which have been designed and built, comparatively little is known about the effects on human beings of *moving* air. Investigations of the Research Laboratory should yield considerable information on that pertinent subject.

Relative effects of temperature and velocity will be measured. Which, if either, is more decisive? How do subjects respond to changes in temperature and air speed? Can an ideal combination of the two factors—for adding or taking away energy from the air—be found?

Military heating and air conditioning systems now are employing air velocities in the 4,000 feet-per-minute category. Within this range noise levels from air motion—above and beyond the noise level of the fan or blower—can be intolerable in confined areas.

Our U.S. Navy discovered this fact several years ago aboard its ships, and gave the laboratory an assignment to find out what could be done about it. The Lab, after exhaustive testing, came up with information which has proved useful in minimizing decibel levels which stem from air velocity.

(Incidentally, reduced decibel levels have become a potent sales tool in the residential system and room cooler fields.)

In addition to its own "pure research" into Environmental Factors, the society will continue its cooperation with other laboratories. In this connection grants are made to universities which can delve into particular problems which are outside the Cleveland Research operation's scope.

All these probings not only will mean money-in-the-bank for you and your company. They will advance the stature of your profession and business. Moreover, they'll result in a boon to mankind!

This ambitious project can be financed only in part by Society funds. It needs modest gifts from individuals, substantial donations from corporations in our field, and scaled contributions from every local business enterprise in our related industries.

Right here is where YOU enter the picture. We don't suggest that you "give until it hurts." Actually, it shouldn't hurt a bit to join this Crusade for Improved Human Well-Being and Productivity through Air Conditioning.

You know that it will pay you business dividends. You can be assured that it will advance the status and stature of your profession. Best of all, you'll be doing a good deed for your children, grandchildren, and the entire human race.

It isn't often that we get a crack at a triple-barreled opportunity like that! Checks should be made payable to ASHRAE Research Fund, 234 Fifth Ave., New York City 1.

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AIR CONDITIONING HEATING & REFRIGERATION NEWS

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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From the Files of the News

25 years ago . . .

Publication by the NEWS of the completely revised 300 page DIRECTORY, 1935 edition, was announced, with 1,200 manufacturers listed. . . . Officers of G-E's Climateers Club, composed of star air-conditioning salesmen, were elected on the club's annual trip to Bermuda. . . . Commercial department conference of the Oklahoma Gas & Electric Co. featured Willis H. Carrier discussing "Manufactured Weather," followed by Carrier's sales manager, J. M. Bickel, on "Selling Air Conditioning."

"I think your editorial on the need of established prices for air conditioning hits the mark squarely," E. L. Weems of the Chicago Airtemp distributorship told the editor of the NEWS in an interview. "I can see grave dangers ahead for the industry if price-cutting isn't controlled. What we need most is a sort of Better Business Bureau, to work out a policy and crack down on present evils."

A feature of air conditioning installed for the Burlington Line "Zephyr" train is an air curtain which functions in the opening between the kitchen and eating space. . . . Servel sent in corrections of its specifications of electric self-contained air conditioners, which had been published in the March 17 issue. . . . "Many a funeral home has lightened the burden for sorrowing relatives by installing air conditioning," said an advertisement of Kinetic Chemicals showing console type room air conditioners.

The 33 installations of air conditioning equipment made in New Orleans during 1934 held up well with totals for previous years, according to figures compiled by New Orleans Public Service Ins. Outstanding gain was in the restaurant field, with five installations.

Previous to the year 1934 no installations had been reported in restaurants.

Representatives of the finned coil industry met to try to draw up a code which might gain approval under the National Recovery Act (NRA). Among those participating—Jim Hatch, Bush Mfg. Co.; R. W. Kritzer, Peerless Ice Machine Co.; R. C. Colman, McQuay, Inc.; H. G. Rieckelman, Fedders Mfg. Co.; and J. J. Krackowizer, Refrigeration Appliances, Inc.

10 years ago . . .

. . . REMA (Refrigeration Equipment Manufacturers Association) allocated a two-year fund of $10,000 for a new program for '50—promoting end-use products. REMA also joined the American Standards Association, setting aside $2,500 for the development of industry standards, and continued as one of the sponsoring organizations of Refrigeration Industry Safety Advisory Committee (RISAC). . . . RISAC, in operation for slightly over a year, reported its attempts to achieve nation-wide agreement on safety standards by promoting the ASA-B9 Safety Code on Refrigeration.

Backbone of a Dayton food supermarket's speedy service is a 3-room "refrigeration center" at rear of the store—a motor-driven conveyor runs in a tunnel beneath the store carrying meats to the service counter. . . . Dehydrated alfalfa will retain more vitamin 'A' if the processor cools meal with mechanical refrigeration, a Nebraska installation revealed.

News in room air conditioners: Frigidaire's model which extended only 13 inches into the room and Ajax Corp. of America's water-cooled model—an "on wheels" portable! . . . Lakeside Presbyterian Church in Richmond, Va. announced plans to install a storage-type air conditioning system in a new church building.

John E. Haines, vice president of Minneapolis-Honeywell Co., discussed "Solar Radiation" before the ASHVE Michigan chapter. . . .

The possible expansion of air conditioning and its "overloading" effect on Dayton, Ohio's sewer system was discussed in relation to the city's water filtration problem.

OFF THE CHEST

HUGE RESPONSE TO 'ASEPTIC AIR' ARTICLE

Robbins Aseptic Air
Los Angeles, Calif.

Editor:

I received several letters relative to your article in the March 14 issue about the Robbins "Aseptic-Air" System for hospitals. I am grateful for your consideration and publication.

The huge request has been overwhelming. We are in need of Consulting Engineers around the country who can work with us as our representative in their area. I believe with control by experienced Consultants we can offer to most any company the opportunity of bidding on the many jobs in their area, and thereby exclude no one of good ability.

REGINALD ROBBINS

SEES COOL FUTURE IN 'CAREFREE ARIZONA'

Cave Creek, Arizona

Editor:

I retired from the navy a chief machinist mate after 21 years of service, went to the Navy school of air conditioning and refrigeration 1958. I am taking a refresher course with Commercial Trades Institute.

This is a very small place and it will take some doing before I can put my full time in the business I am starting. In a year or so it will show a big improvement as they are building up a place called "Carefree Arizona."

As this place gets bigger they will have refrigeration and heat pumps in all the new homes. Right now its mostly evaporative coolers, but also there is a big field in refrigeration here.

HENRY CHRISTIANSEN

NEW TREATMENT OF HEAT FUNDAMENTALS

Sears Roebuck & Co.
Chicago, Ill.

Editor:

I have been a reader of your paper and your column "Inside Dope" for about 15 years. I am well aware of the fact that you are quite interested in various approaches to the problem of training air conditioning and refrigeration technicians.

We recently started to assemble a course for our own service technicians in which the treatment of the fundamental principles of heat was somewhat out of the ordinary, as you can see from the enclosed samples.

I am sure you will be interested, because you always have been interested in new approaches to this subject, and because I suggested to the publisher that The NEWS would be a good place to advertise the availability of this material.

F. A. BEAVER,
Technical Training Director

Editor's Note: The booklets in question, published by Saedi Unlimited of Chicago, Ill., now are being advertised in the NEWS.

CORRECTS G-E UNIT RATING IN SPECS

General Electric Co.
Air Conditioning Dept.
Tyler, Texas

Editor:

Once again your "Show Case" issue has impressed us with its usual mass of information; and as always we are pleased with the high degree of accuracy displayed in transferring our data to the printed columns of part two—the specifications section.

There is one transposing error, however, which we would like to call to your attention:

Page 16B, Split Systems—evaporator, blower evaporator units, Model TE72BH, Capacity (Btuh) listed as 77,000 should be 72,000.

All the other General Electric Tabulations look good to us.

A. D. O'CONNELL,
Product Planner
Air Conditioning Dept.

NO BRAND LOYALTY IS SIGNPOST ON ROAD TO RUIN

..... Air Conditioning
Los Angeles, Calif.

Editor:

I am perturbed that there is such a lack of loyalty among heating and air conditioning dealers all over the country.

If there is any merit to the idea of "using the user" the selling of many brands is not conducive to "using the user."

Perhaps the trend in the industry is for the manufacturer to create the prospects for his particular brand and let the dealer sell what is called for. If this is the trend, once again there is no merit to the theory of "using the user" (and so far, according to all surveys, it is the users of residential air conditioning who have influenced the sale to future prospects).

If manufacturers are to create prospects for their own products, this would mean that residential air conditioning and commercial air conditioning will become like room air conditioners—shelf items with people operating in central service and installation, installing equipment for dealers when they sell it and servicing it afterward.

Whichever way the industry goes, in my opinion, will be determined by the attitude of dealers in their own merchandising program, namely, whether or not they merchandise a single brand and are loyal to that brand, and build themselves with it, or whether they take the course of least resistance now which would be to sell any brand—particularly that which is cheapest. Then I think we would definitely see the industry turn to central installation and central service as many, many more dealers would be selling.

..... Manager

SALESMEN OF PACKAGED EQUIPMENT LINES

The Trane Company has immediate openings for salesmen of residential and small commercial air conditioning lines. 3-5 years experience selling to dealers, contractors and jobbers required. Must be able to establish sound dealer organization, assist in dealer training programs. Fine earning potential with commission arrangement. Contact G. R. Hassell, Manager, Staff Employment, The Trane Company, La Crosse, Wisconsin.

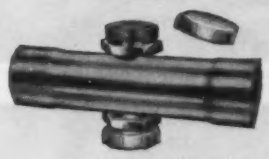
HENRY VALVE CO.
CONTROLLING FLOW SINCE 1914

DEMAND IS GREAT... EVERYONE IS BUYING THESE EXTRA VALUE PRODUCTS

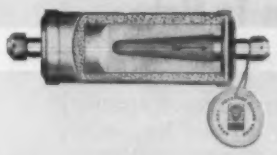
"DRI-VUE" Moisture-Liquid Indicators | "DRI-COR" Filter-Driers Molded Core | "GOLDEN BANTAM" Diaphragm Packless Valves

"DRI-VUE" INDICATOR PORT
Actually Spells "WET" or "DRY" with element Color Variation—Largest Visible Element Area.

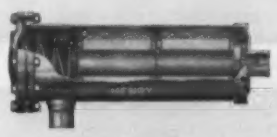
"DRI-VUE" INDICATORS
Double Port Moisture-Liquid Indicators, Large O.D.S. Sizes. Triple Sealed Ports.



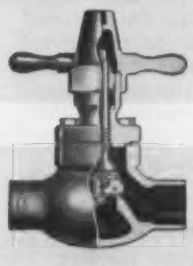
"DRI-COR" FILTER-DRIERS
Two Stage Drying; Molded Core and Granular Desiccant. Abso-dry Processed.



"DRI-COR" Cartridge DRIERS
Molded Filter Core and Granular Desiccant. Split Second Cartridge Installation.



SHUT-OFF VALVES
Packless and Packed with Flanged and Integral Connections. Wide Range of Sizes and Types.



Only Henry offers you this complete variety of types and sizes, from ¼" flare packless to 4⅛" O.D.S. packed Wing Cap valves, from 1 ton sealed type to 165 ton cartridge type filter-driers and ¼" flare single port to 2⅛" O.D.S. double port moisture indicators.

HENRY VALVE COMPANY
For Refrigeration, Air Conditioning and Industrial Applications
MELROSE PARK, ILLINOIS, U.S.A. CABLE: HEVALCO, MELROSE PARK, ILL.

Two Years Experience Finds Voluntary Arizona Bid Depository Working Well

PHOENIX, Ariz. — New officers were elected recently by the Arizona Bonded Bid Opening Service, a bid depository that has completed two years of successful operation in Maricopa county.

Operating the service this year are James B. Donahue, chairman; Norman Brooks, vice chairman; Denby Stiles, secretary; John Welsh, treasurer; and Jim Holder, Ames Thompson, Paul Engebretson, J. B. Rodgers, E. T. Maynard, and Jack Dean, directors.

All these men are air conditioning or plumbing contractors, with the offices divided evenly between the two groups. In this area, plumbing bids and air conditioning-sheet metal bids, are generally separate and distinct bids to the general contractor.

Registrar of bids is William N. Nichols.

About 90% of the plumbing, heating, and air conditioning contractors participate in the plan, it was reported.

The depository is independent of either the air conditioning or plumbing contractors associations.

"This is the key to a legal, simple, and workable depository," asserts Engebretson of Conditioned-Air Co.

Another factor in the plan's success, according to Vice Chairman Brooks is that the subcontractors are not required to put all their jobs through the depository and general contractors do not have to accept bids on every job.

This freedom of choice encourages cooperation and support and tends to make the system legal, he indicated. It has already withstood a court test, he added.

This is how the Arizona bid depository works:

Any properly licensed subcontractor in the fields of plumbing, heating, air conditioning, and sheet metal can participate in the depository upon purchase of one share of stock in the corporation for $1 and by agreeing to strict adherence to the rules.

There is no limit on the size of job covered. Any job is eligible where two or more general contractors are bidding on it.

Subcontractors wishing to bid must notify the registrar of his intention to bid at least 12 working hours before the depository closing time. Depository closing time is six working hours before the opening of bids by the awarding authority.

A separate bid is filed in locked boxes at the Bid Service office for each general contractor to whom the subcontractor desires to bid. Bid proposals are made on special forms designed for the purpose and filed in special envelopes. A duplicate of these bids are filed in yellow envelopes for the depository along with a deposit check.

Bids, firm for 30 days, are filed for particular sections of the contract. Portions of work of other sections are shown as separate additions to the complete section. Portions not included in the section bid are shown as deductions from that section.

In this way, Brooks explained, every bid covers the same thing and is easily comparable.

Bids can be deposited at any time when the Bid Service office is not open by dropping them in the mail slot. They slide into a heavy gauge sheet metal locked

Subcontractor .....
Name of Project .....
Item Bid .....
Bid Depository No. .....

General Contractor .....
or
The Arizona (Bonded) Bid Opening Service

The undersigned contractor or company hereby acknowledges receipt of a bid from ..... on Job No. ..... In so doing the undersigned agrees with the bidder and with the Arizona (Bonded) Bid Opening Service that assuming that the bid contained herein complies with the rules of the Service, he will use some bid forwarded to him by the Service on this Job.

.....
(Contractor)

By.....
(This line to be signed only if signature is by authorized agent of contractor.)

FRONT AND BACK of special envelope in which sealed bids are delivered to general contractor. By signing for bids, general contractor agrees to accept one of them.

Form Firm To Make Control Systems

SOUTH SAN FRANCISCO—Petersmith Controls, Inc., with headquarters here, has been formed to manufacture mechanical control systems and labor-saving electrical control systems.

Officers are Richard W. Corey, president and chief engineer; Robert T. La Porte, treasurer and production manager; Robert E. Kimball, vice president and sales manager; and Barry Stubbs, secretary and counsel.

Thinking of—
- **changing territories**
- **expanding your territory**
- **taking on new lines—**

Check the CLASSIFIED ADS

Your opportunity may be there.

bryant

dealers get 2 cracks

BID PROPOSAL

from

Bid # .....

Date .....

Bidder..... City..... State.....

To..... City..... State.....

Name of Project .....

We offer the following prices, firm for thirty days from this date, for performance of work covered by applicable specifications, and addenda numbered ..... Price shown for any particular section is for all work covered by the specifications for that section, excepting the items listed below. Portions of work of other sections are shown as separate additions to the complete section. Portions not included in section bid are shown as deductions from that section. Sections are identified with same symbols used in original specifications.

Section #..... Bid $.....

Section #..... Bid $.....

Section #..... Bid $.....

Section #..... Bid $.....

Bidder.....

PARTIAL FORM OF BID PROPOSAL used in Phoenix on which subcontractor bids for sections of a contract. A duplicate copy of this bid is deposited with the Arizona Bonded Bid Opening Service.

box attached to the door.

There is a $5 penalty for failing to get bids in at least 12 working hours before depository closing. No bids will be accepted after the depository is closed.

After the depository is closed, bids are delivered to the general contractor by bonded messenger.

The general contractor signs a receipt for his bids. In doing so he agrees in writing to use one of the bids forwarded to him.

The registrar of the bid service opens the duplicate copy of the bids at the same time as they are sent to the general contractor. He does so in the presence of any interested bidders. Later a tabulation of bids is sent to each bidder. Unsuccessful bidders are notified when their bids are not accepted.

Periodically, the service sends statistical information to all participating contractors.

Depository rules also regulate the withdrawal of bids once made and calls for rebids.

In practice, Brooks commented, the bid depository has eliminated bid peddling and bid shopping and has given the subcontractor the same privilege of a bid opening that general contractors have with the awarding authority.

"We sincerely believe," Brooks said, "that other areas should adopt bid depositories because the only one who is hurt is the chiseler. Once he finds out the advantages of fair bidding, he, too, may be a faithful participant."

Start Work July 4 On Construction Showcase In Dallas

DALLAS—The "dream of the construction industry in Dallas"—a central showcase for the benefit of the trade and public alike—will begin to take physical shape on July 4 when ground-breaking ceremonies are held for Fleetwood Square, the $3 million center at 5206 Maple Ave., it was announced recently.

Seven leaders of building trade associations already have accepted invitations to participate in the festivities. Others are expected to attend, along with city and county officials.

Fireworks and a special evening program in the Maple theater will signal the official beginning of work on the George L. Dahl-designed square. The complement of three structures will sit on the 4-acre site where the theater now stands.

The center will consist of Fleetwood Tower, an office-exhibit building; Fleetwood Terrace, theater-auditorium; and Fleetwood Fountains, a plush restaurant with its private club and balletic waters.

Among the trade association presidents who have accepted invitations to participate are those of the Mechanical Contractors Association, Dallas County Construction Employers Association, National Electrical Contractors Association, Construction Specification Institute, Producers Council, American Institute of Architects, and Association of General Contractors.

Edmund G. Peterson, Dallas builder, together with the oil firm of Bright & Schiff, will erect the square.

R. M. Oeberst Leaves York Pacific, Forms Own Consulting Firm

SACRAMENTO, Calif. — Richard M. Oeberst has announced the sale of his interest in York Pacific Co. here and the establishment of his own new business in Sacramento.

The new business is Air Con Engineering, Richard M. Oeberst & Associates, with offices at 1819 23rd St.

Oeberst is a registered professional mechanical engineer and a licensed contractor.

Air Con Engineering offers consulting engineering services in air conditioning, refrigeration, heating, and cooling, and contracting in the same fields.

Oeberst said the new firm will represent established equipment manufacturers.

Oeberst founded what is now York Pacific Co. when he established Refrigeration Equipment & Service Co. in 1935 at Santa Rosa, at a time when York Corp. was known as York Ice Machinery Co.

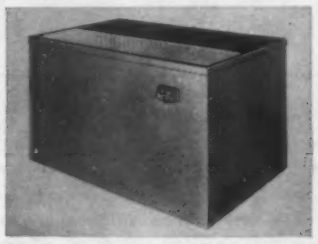
William T. Clark, from Los Angeles, joined the York Pacific staff in 1954, and in 1955 purchased a 50% interest. Sale of Oeberst's interest in York Pacific Co. to Clark was consummated March 22 when Oeberst officially resigned as president.

at the job...do you?

GAS AND ELECTRIC AIR CONDITIONING

Bryant dealers are in the best position to sell an air conditioning job—gas or electric. Almost unlimited coil and condenser combinations. They are backed up locally by factory-trained people on engineering, layout, supervision...and ABCC, Bryant's own financing plan.

GAS AIR CONDITIONING: The ONLY air-cooled, add-on gas unit designed specifically for present warm air systems. Ideal for new homes, too. Remote unit is easily installed. No special wiring required. Five-year warranty. Capacities: 36,000 and 54,000 B.T.U., A.R.I. Ratings.



ELECTRIC AIR CONDITIONING: Adds on easily to present warm air heating systems. Air-cooled, remote unit. Double cooling coils fit on top of furnace or in air ducts in basement, attic, crawl space. Five-year warranty. Capacities: 24,000 to 75,000 B.T.U., certified in accordance with A.R.I. 210-58.

12 REASONS WHY YOU'RE AHEAD WITH BRYANT: 1. Most complete line. 2. Exclusive features you can sell. 3. Fast delivery. 4. Most flexible financing and credit assistance. 5. On-the-spot counsel. 6. Sales and technical training. 7. Business management guidance. 8. Local ad campaigns. 9. Sound selling policies. 10. Bryant's national reputation. 11. Gas air conditioning. 12. Bryant's financial strength.

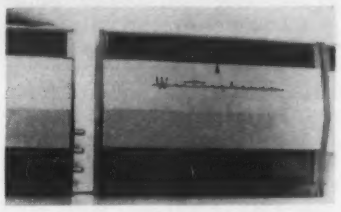
bryant

Bryant Manufacturing Company, Indianapolis, Indiana

In Canada, Bryant Manufacturing Ltd., Toronto, Ontario

Baseboard Electric Heat Section Plugs-In

● A new line of baseboard electric heating equipment it has introduced features the use of modular plug-in sections that cut installation time considerably, according to Westinghouse Electric Corp., Dept. AH&RN, P.O. Box 2099, Pittsburgh 30.



Although more compact than previous baseboard models, these units provide the same output—250 watts per linear foot, while the surface is comfortable to touch, the company said.

The plug-in feature simplifies installation since electrical connections are required at one point only—in the control section, it was stated. Additional sections are installed by "plugging-in" to the control section through a concealed three-pronged connection. This double-male grounded plug provides continuous flow of power to each section. The units are easily fastened to the wall to complete the installation, it was pointed out.

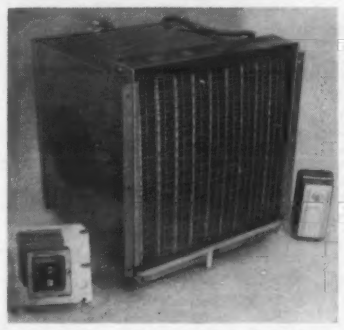
One standard 2-ft. length is available because of the flexibility provided by the plug-in feature. In addition, the line includes a new "universal" corner section which can be used to provide continuous right angle connection for either an "inside" or "outside" corner.

Want More Details?

ADDITIONAL details on products that are described on these pages may be obtained by writing the manufacturer at the address given in each What's New story.

Humidifier Produces Controlled Humidity

● Production of a new humidifier that is claimed to provide the exact degree of humidity needed and is "easily installed on any forced warm-air furnace" has been announced by H. G. Stocker & Son, Dept. AH&RN, Box 368, Osceola, Wis.



The company said the unit provides the humidity called for by a precision humidistat (included in the installation kit), without use of moving parts, by cascading water over a filter-evaporator element.

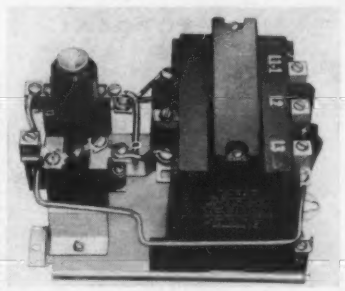
According to the manufacturer, five years of testing preceded marketing of its "Tropical Mist" humidifier. Merchandising feature stressed is that controls enable user "to dial the comfort wanted."

Copper Tube Strap Drives Like A Nail

● A combination strap and nail called "Drive-Strap" is announced by Holub Industries, Inc., Dept. AH&RN, Sycamore, Ill.

It is claimed that this copper tube fastener provides an easy, fast way to install radiant heating coils on the ceiling. It drives like a nail and eliminates the handling of two separate pieces.

The Drive-Strap comes in two types for use in masonry or wood.



Simplify 50-Amp Starters, Contactors

● Addition of 50-ampere contactors and starters to its line of definite purpose a.c. motor control for the heating, refrigeration, and air conditioning industries has been announced by Cutler-Hammer, Inc., Dept. AH&RN, 502 N. 12th St., Milwaukee 1.

"Simplified to incorporate only those elements essential to reliable operation, the economical 50-ampere contactors and starters are compact in design and suited for use with hermetic type refrigeration and air conditioning compressor units, heat pumps, and resistance-type electric heaters," it was stated.

"Chief features of the definite purpose line are quiet magnet structure, low power requirements for commercial or residential systems, and an exceptionally fast thermal overload relay for sure protection. In addition, the 50-ampere apparatus provides accessible control circuit terminals to save installation time."

The Most Complete Line you can sell is

PERFECTION

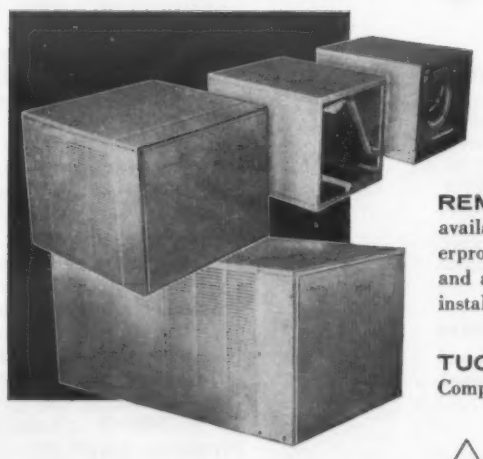
Why miss a sale because you don't have the right unit for the job? In the popular 2-ton thru 5-ton size range, Perfection offers you a wider selection of units than you'll find in any other line — types and sizes for any residential or light commercial installation — heat pumps or air conditioners — remote or package models. Compare Perfection with your present line. Think what those extra units can mean to you in extra profits.

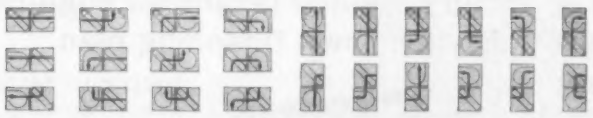
A FULL SELECTION OF AIR CONDITIONERS

REMOTE — Air cooled condensers in 2, 3, 4 and 5-ton sizes—all featuring Perfection's exclusive upflow circulation for added safety, efficiency and quietness—all weather-protected with a U. L.-approved, 2000-hour salt-spray tested finish. A complete selection of evaporators and air handlers: angle, "A", counterflow and horizontal coils; versatile horizontal and vertical evaporator-blower combinations to solve any installation problem.

TUCKAWAY — Package units in 2 thru 5-ton sizes — all with efficient air-cooled condensers, durable 2000-hour salt-spray tested finish, and double-wall construction on evaporator-blower section.

A FULL SELECTION OF HEAT PUMPS





REMOTE TRI-PAK— The most versatile heat pump you can sell, available in 3 and 5-ton capacities. Remote air-cooled condenser, with weatherproof 2000-hour salt-spray tested finish, is installed outside. Indoor coil and air handler can be combined in every conceivable manner to meet any installation requirement (12 basic combinations are shown above).

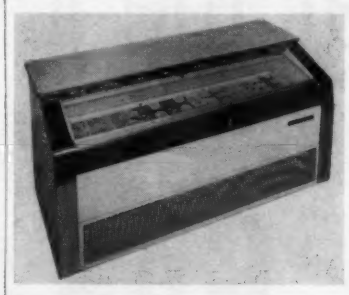
TUCKAWAY — Quickly-installed package units in 2, 3, 4 and 5-ton sizes. Compact, easily-serviced, with weatherproof, fully sound-insulated cabinets.

BE A PERFECTIONIST!

See your nearby Perfection Distributor for full information on the complete Perfection line. Ask him for the free booklet, "How to become a PERFECTIONIST." It's new, and loaded with sales tips. If you don't know him, ask us for his name.

PERFECTION DIVISION
HUPP CORPORATION
CLEVELAND 10, OHIO

Perfection also manufactures a complete line of World's Fair award-winning furnaces. Broad selection of types and sizes — gas, oil or electric.



Countertop Unit Converts to Open Top

● Introduction of a countertop ice cream merchandiser that may also be used as an open-top merchandiser in wall and island locations has been announced by Kelvinator Div., American Motors Corp., Dept. AH&RN, Detroit 32.

The new automatic defrost model AMCT-72 "provides flexibility of use and location, full-area vision, and a convenient countertop that may be used for a cash register or for displaying related items when placed against a wall," it was stated.

The 36-in. high countertop is 18 in. wide and made of heat and acid-resistant, laminated plastic.

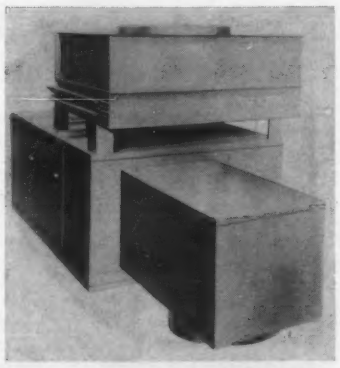
"A special blower system prevents moisture condensation and fogging of the lid," Kelvinator said.

Dux-Sul-Glue Now Sold Separately

● A change in distribution of its "Dux-Sul-Glue" insulation adhesive has been announced by Grant Wilson, Inc., Dept. AHRN, (An-8), 141 W. Jackson Blvd., Chicago 4.

Dux-Sul-Glue has been included in packages of the company's "Dux-Sulation" for applying that warm and cold air duct insulation.

"Now, the adhesive is also sold separately as a safe, general adhesive for either blanket or block form insulating materials used in a wide range of temperatures."



10-Ton Packaged Unit For Roof Mounting

● A new 10-ton packaged air-cooled air conditioner and gas-fired heater combination, designed for roof-mounting, has been introduced by Typhoon Air Conditioning Div., Hupp Corp., Dept. AHRN, 505 Carroll St., Brooklyn 15.

It offers a complete year-round system for commercial and industrial buildings with significant economies in installation, operation, and maintenance, according to the company, which added: "The simple, gas-fired heating system providing 240,000 B.t.u.h. output is completely contained within the unit."

The 10-ton unit is in addition to an 8-ton unit introduced by Typhoon early in 1959.

The new unit is said to be particularly suitable for heating and cooling shopping center stores, supermarkets, and similar one-story structures. All internal piping and wiring is done at the factory. An air distribution plenum and diffuser, to carry air to and from the building interior, is supplied with the unit.

The unit provides intake and discharge connections through the end. This permits placing the unit over weight-bearing building members—not necessarily over the space it serves—and running ductwork to the diffuser, the company stated. Additional roof-support is not normally required, Typhoon said.

The compact unit measures 90 by 60 in., and is 80 in. high.

Wolverine Markets Cleaned, Sealed Tube

● Introduction of ACR, a new copper tube expressly for refrigeration and air conditioning applications, has been announced by Wolverine Tube, division of Calumet & Hecla, Inc., Dept. AH&RN, 17200 Southfield Rd., Allen Park, Mich.

Wolverine ACR (Type L) is a cleaned and sealed tube available in 20-ft. straight lengths in sizes ranging from ¼ in. nominal o.d. to 4 in. inclusive, and is ready for use by the refrigeration service engineer. It will be marketed on a national basis, through refrigeration and air conditioning wholesalers.

Other features of this seamless tube include color coding with ACR markings indicating its primary use is for air conditioning and refrigeration applications.

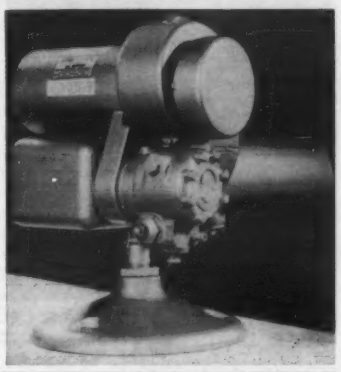
Also announced was a change in pricing policy which allows the wholesalers to combine orders for 50-ft. coils of refrigeration service tube with ACR, type L, 20-ft. straight lengths to obtain the best quantity discount, as long as the total net weight involved is 2,000 lbs. or over.

Wolverine recently made another announcement to the effect that three new sizes of tube were to be added to their coiled refrigeration service tube line to allow a greater range for the user. Included are sizes with outside diameters of ⅞ in., 1⅛ in., and 1⅝ in.

Conversion Burner Operates at 10-12% CO_2

● After thorough field and laboratory tests, Lennox Industries, Inc., Dept. AH&RN, 200 S. 12th Ave., Marshalltown, Iowa, claims its new low-gallonage conversion burner will operate at 10 to 12% CO_2 with no smoke.

"It's an entirely new design," says Lennox, "specifically created for quiet and efficient burning at rates of .50 to .85 gallons per hour. Design of the combustion head provides such a complete mix of oil and air that combustion is complete without relying upon the construction or material of the combustion chamber."



Additive Keeps Flux Close to Base Metal

● A new fluxing additive that acts as an adhesive to keep the flux close to the base metal is now available from Westinghouse Electric Corp., Dept. AH&RN, P. O. Box 2099, Pittsburgh 30.

The new additive, called "Wes-X 501," eliminates the critical time between fluxing and hot dipping, the company claims, adding: "In fact, parts have been flux dipped, allowed to dry, then successfully hot dipped three weeks later. Wes-X 501 has reduced the number of rejected parts and makes hot dipping of cast parts easier."

Whirlpool Shows Gas Refrigerator-Freezers

● A line of three "No Frost" gas refrigerator-freezers has been introduced by Whirlpool Corp., Dept. AH&RN, St. Joseph, Mich.

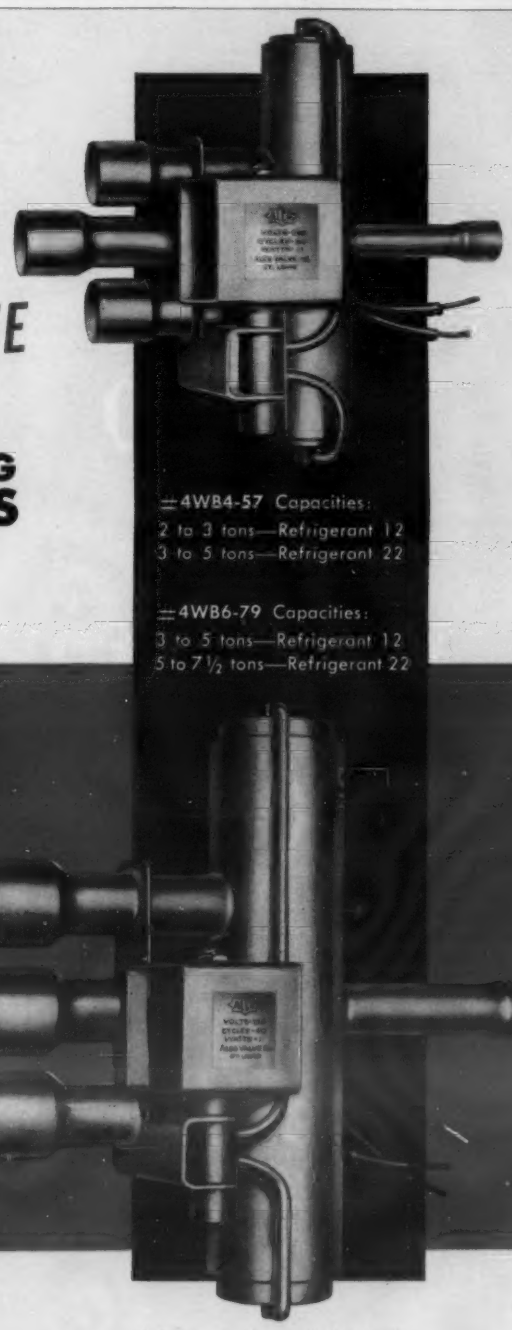
All three of the 13-cu. ft. models eliminate the problems of frost accumulation in both freezer and food compartments, have thin-wall urethane foam insulation, "million magnet" door gaskets for positive sealing, and squared-off architectural styling to permit installation flush to side walls and back, according to the manufacturer.

The top-of-the-line GA-1400 model also features a hollow glass shelf through which passes a current of cold air for quick chilling of desserts and beverages; a redesigned automatic "IceMagic" ice maker; an "air conditioned" meat chest; twin crispers; and glide-out shelves.

In these 1960 models the absorption system weight has been reduced 50% to 88 lbs. and the number of welds 30% to less than 100. The new units consume less gas than predecessors, and warm air is exhausted at the base of the refrigerator instead of out the top rear so they may be installed with only 4 in. clearance between the top and ceiling or wall cabinets and no clearance is required on sides and at back, the company said.

Made by ALCO
OF CAST IRON AND STEEL
like a Compressor
for LONG RELIABLE LIFE

4-WAY REVERSING VALVES
for all reverse cycle systems



=4WB4-57 Capacities:
2 to 3 tons—Refrigerant 12
3 to 5 tons—Refrigerant 22

=4WB6-79 Capacities:
3 to 5 tons—Refrigerant 12
5 to 7½ tons—Refrigerant 22

Features:

- fine machining and precision honing of cast iron slide and steel outer shell—NO PLASTICS ARE USED.
- operating tests of 300,000 cycles without failure to shift and without loss of tight seating—tests made by independent laboratories.
- shifting (change cycle) while the system is in operation with a 300 PSI differential.
- rapid shifting—to shorten change-over time and therefore shorten defrost cycle.
- the shifting of the valve independent of any pressure drops, and efficient shifting under any combination of operating conditions.
- mounting in any position—except with the pilot valve upside down.

Call your Alco wholesaler—write for Specifications.

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• *BUY QUALITY*
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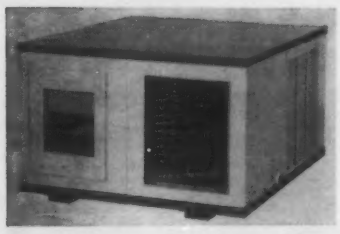
The one complete line of refrigerant controls: Thermostatic Expansion Valves • Refrigerant Distributors
Solenoid Valves • Suction Line Regulators • Flooded Evaporator Controls and Reversing Valves



Holly General Bows High Ambient Units

● Addition of two self-contained summer air conditioners to its product line has been announced by Holly-General Div., Siegler Corp., Dept. AH&RN, P.O. Box 2098D, Pasadena, Calif.

The new units, models AP3-36 and AP3-45, have ARI capacities of 36,000 B.t.u.h. and 45,000 B.t.u.h., respectively. They are air cooled and are designed for operation at ambient temperatures in excess of 125° F.

Both units feature a low silhouette. They are 25 in. high, 40 in. wide, and 44½ in. long.

"A unique panel arrangement is used to allow the supply air to be discharged either from the front or from the side of the unit, and the return air to be taken from either the opposite side or front.

"The indoor air section is completely insulated, and the entire unit is designed for outdoor installation. Outdoor condenser air is admitted through louvers on both sides of the unit and discharged through the condenser to the rear by an axial fan."

Airtemp Puts Luxury Features on Room Unit

● Addition of a low-cost model to its room air conditioner line has been announced by Airtemp Div. of Chrysler Corp., Dept. AH&RN, Dayton 1.

The new model is the "Slender" S11-011. Airtemp's engineers "have designed a basic, quality-built unit which will produce 7,100 B.t.u.h. and we have added a few features to the S11-011 which are usually found in luxury room air conditioners," it was stated.

Among the standard features on the new model are an automatic thermostat, a two-speed fan, and a four-way finger tip air flow control. The S11-011 will operate on 115-volt current at 10 amps and expands the 1960 Chrysler room unit line to 26 models.

Heat Controller Adds Low Boy Gas Furnaces

● Announcement of its latest entry into the forced warm air furnace industry with the "Comfortaire" line of low-boy gas furnaces has been made by Heat Controller, Inc., Dept. AH&RN, Jackson, Mich.

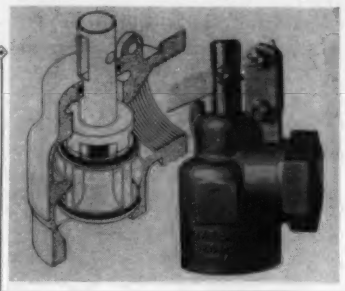
Capacities of the re-instated line range from 80,000 to 195,000 B.t.u.h. input and the line is AGA approved for use with natural, manufactured, mixed, and/or LP gases, it was stated. All furnaces have sectional heat exchangers, cast iron slotted burners, and draft diverters. All are pretested before marketing.

"Heat exchangers are designed with corrugations running the entire length of the tube, adding rigidity, which eliminates expansion and contraction noises, the firm said. The design gives efficient heat transfer and a uniform heat pattern, it was indicated.

Burner design permits "an even flame throughout the entire length."

Blowers are large-sized, multi-blade centrifugal type, and controls are combination type with 100% shut-off supplied as standard equipment.

BIG help on refrigeration jobs... BIG reducing tees
Reducing tees in larger sizes have now been added to the NIBCO line. They save unnecessary bushings, save time and effort. Formed from copper tube like all NIBCO wrot fittings, these big reducing tees have high metal density . . . no porosity, no weepage of refrigerant gases. For the complete line of NIBCO wrot copper fittings, SEE YOUR WHOLESALER OR WRITE.
NIBCO
NIBCO INC., Dept. K-6204
Elkhart, Indiana
These cuff links are made from 3/16" NIBCO wrot tees. Big, little, or in-between . . . there's a NIBCO wrot copper fitting for your exact job.
Fig. No. 9611-R (4⅛" x 4⅛" x 3⅛"—actual size)



Marley Float Valve Has Two Basic Parts

● A new design, "Direct Action" float valve is being marketed by the Marley Co., Dept. AH&RN, 222 West Gregory Blvd., Kansas City 14, Mo.

Mechanical simplicity, operational dependability, and maintenance ease are claimed features of the valve. The manufacturer indicates, "only a pair of pliers is needed for any maintenance job."

"The DA valve has only two basic parts—body and plug," it was pointed out. "The plug and stem are cast as an integral unit. The body, which is also cast as a unit, has a threaded inlet opening and the outlet opening can be threaded if desired. O-rings, utilized to form stem seal and plug seats, cannot be fouled or stuck by foreign matter in the water. There are no packing glands, packing nuts, cup leathers, or seat discs; no ground or threaded parts.

"Non-corrosive metals are used throughout Marley DA float valves: bronze castings, float rod and cotter keys, brass pivot pins, brass and stainless steel screw fasteners. Floats are either Tenite plastic or copper."

Thermoramic Shipping Box Becomes Display

● A new multi-color carton, doubling as a shipping container and counter display, has been produced for its "Thermoramic" indoor-outdoor temperature control system, according to General Controls Co., Dept. AH&RN, 801 Allen Ave., Glendale 1, Calif.

The package incorporates a perforated false flooring which permits the two thermostats used in the system to be held securely in position. For display purposes, the top folds into an arched backdrop featuring the red and white General Controls shield. When the top is closed, the carton is ready for safe shipping.

More details on the products described on these pages may be obtained by writing the manufacturer at the address given in each story.

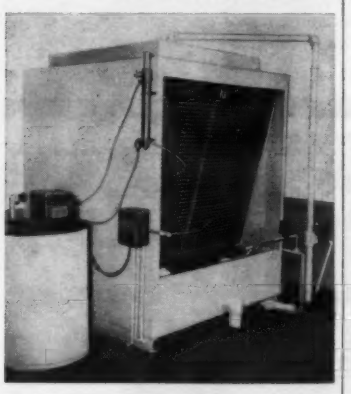
Balanstat Adjusts To Any Air Pattern

● Introduction of a new air diffusing device called the "Balanstat" has been announced by Lenly Mfg. Co., Dept. AH&RN, 901 East Ninth St., Los Angeles 21.

The Balanstat can be adjusted so that each of its rings and centerpieces elevate and lower correspondingly to the 15° elevation of their design, or 30° of over-all movement. Turning a center control knob which effects a continuous compound leverage in both directions makes it possible to achieve any degree of air pattern, according to the manufacturer.

Positions of both the flush or step down designs and anything in between can be achieved by the Balanstat, it is claimed. Further adjustment enables an inverted pattern so that total coverage of air may vary from 15° to 180°. In addition, no separate damper is required because it can be closed in its inverted position, providing an air tight dampering device.

Ring design causes a turbulence as the air leaves the Balanstat so that discharged air will emanate in an even steady rolling air stream at a slightly lower velocity, helping to blend with the air it passes through, the company said.



Water Treatment Feeder Ends Drift

● "Hydrotrol," a new type of water treatment feeder and controller designed especially for use with recirculating cooling water systems to prevent corrosion, mineral scale, slime, and algae, has been announced by Heller Laboratories, Inc., Dept. AH&RN, 124 Fort Lee Rd., Leonia, N. J.

The concern claims that Hydrotrol eliminates "drift" of treatment and simplifies cooling water treatment control.

"With Hydrotrol, 'bleed off' and chemical feed are adjusted automatically so that the rate of chemical treatment feed and bleed off are always in direct proportion to the rate of water evaporation or the cooling load on the system," the firm said. It added that "only occasional analyses are required to check operation of the system."

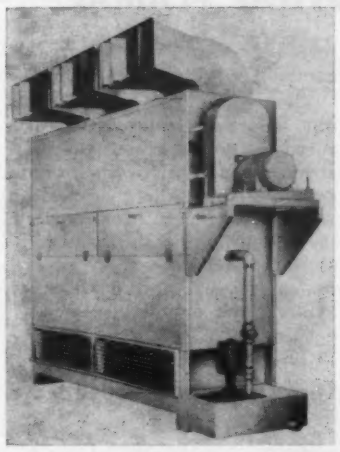
In addition to savings in water analyses, control labor, and attention required, Hydrotrol is claimed to make possible savings in chemicals and water. It is designed for use with either acid or alkaline treatments.

Flexible Steam Hose

● "White Line Steam Hose," a flexible hose specially designed for steam transmission, is offered by Titeflex, Inc., Dept. AH&RN, Hendee St., Springfield 4, Mass.

The product utilizes an extruded "Teflon" innercore, pure bronze wire braid reinforcement, and solid brass swaged fittings to counteract the ravages of live steam, the company said.

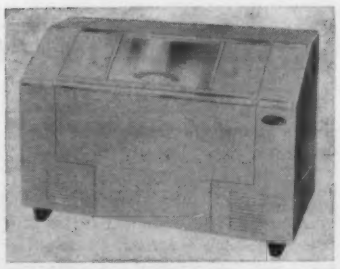
Industrial Units Use Liquid Defrost Spray



● An improved line of floor-type industrial refrigeration units which utilize a continuous liquid defrosting spray for lower temperature applications has been announced by Imeco, Inc., Dept. AH&RN, 3033 West Belmont Ave., Chicago 18.

The new line has been completely redesigned and has been extended to include a range of sizes from 5,000 to 25,000 c.f.m. with refrigeration capacities of from 3 to 24 tons. These units are designed to use brine or any suitable liquid as the defrosting medium and are made for use with ammonia, halogenated refrigerants, or brine. They are available arranged for fully-flooded operation, liquid recirculation, or thermal expansion valve operation.

A choice of either prime surface coils or finned coils with a selection of coil depths to meet almost any application requirement is available, the company said. Units are complete with centrifugal fan assembly, defrosting spray pump and motor, spray header and nozzles, sliding type removable eliminator section and full length access doors.



Under Bar Machine Flakes 500 lbs. of Ice

● Production is under way on its new 500-lb. flaked ice machine, according to Ross-Temp, Inc., Dept. AH&RN, 1805 S. 55th Ave., Chicago 50.

Like other Ross-Temp models, the 500-lb. unit can be conveniently placed under a back bar or in a service island, it was noted. Two ⅓-hp. hermetically-sealed air-cooled compressors provide ample capacity, the company said.

What's New

Capacity ratings are based on 90° air and 70° water. Storage bin is all stainless steel. Cabinet is finished in bonderized steel—pearl gray hammerloid baked enamel with stainless steel service doors. Unit is also available in all stainless steel cabinets.

Suction Cells Anchor Fabcel Pad to Floor

● Low cost machine mountings are provided by the use of new "Fabcel Pads" which eliminate the need for bolts, lag screws, or cement under most machines, according to Fabreeka Products Co., Dept. AH&RN, 1190 Adams, Boston.

Fabcel's suction cells anchor the machine to the floor and at the same time the pads control vibration, absorb shock, reduce noise, and improve machine performance, it is claimed. Manufactured in 18-in. squares, the pads are cut to any shape desired.

Engineering the temperature...

with RECOLD on the Illinois Tollway

At any of the five "Oases" along the 187-mile Illinois Tollway, motorists may dine and relax at Fred Harvey Restaurants overlooking the highway or service their automobiles at Standard Oil stations. Everywhere, be it toll gate, restaurant or service station, year-round comfort is assured with air-conditioning by Recold Corporation.

RECOLD CORPORATION
7250 East Slauson Avenue, Los Angeles 22, California

RECOLD

Wicks Takes Post As Code Adviser With IHACI

LOS ANGELES—A. B. Wicks, who retired earlier this year as principal heating and refrigeration inspector for the City of Los Angeles, is now operating on a five-days-per-week basis as code adviser for the Institute of Heating & Air Conditioning Industries, the IHACI announced.

Wicks maintains his office at the institute headquarters, 5107 West First St., Hollywood. He will serve as liaison consultant for institute members on code and other installation problems, according to Glenn Darrow, IHACI codes and ordinance chairman.

In addition, Wicks will provide members with advisory bulletins, make on-the-job inspections, appear on variances, and help with other problems. He will also be available to members and non-members for plan drafting on a private-fee basis.

Wicks was succeeded as Los Angeles' principal heating and refrigeration inspector by Hal F. Fitzgerald. He has served in the Dept. of Building & Safety since April, 1947, when he joined the heating division as an inspector. Later he was named senior inspector.

New WAHINC Official Says: Get Through to The Buying Public

SAN FRANCISCO — "You have to get through to the buying public," Charles S. "Chick" Conrad said after his appointment as executive manager of the Warm Air Heating Institute of Northern California.

Conrad has spent considerable time in his career in the promotion and development of new products and new uses of metals.

He recently left his position as head of the metals department of Tay-Holbrook, Inc., to join the institute, which has recently strengthened its organizational setup.

By virtue of a recent change in institute by-laws, each sheet metal contractors association in northern California is now represented on the board of directors.

Supported by sales of stamps affixed to furnaces and heaters by manufacturers or wholesalers, the institute has a promotional program including newspaper advertising.

At this time direction of the promotional program is toward local level control in the various population centers of northern and central California.

The institute board represents contractor associations, wholesalers, and manufacturers.

Conrad takes the institute position which was vacted by Dar Knowles.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Design Data Revised by California ASHRAE

LOS ANGELES — Some 50 more communities, mostly in Arizona, are listed in the revised, second edition of "Recommended Outdoor Design Temperatures—Southern California, Arizona, Nevada" just issued by the Southern California chapter, American Society of Heating, Refrigerating & Air-Conditioning Engineers.

Design data is listed for approximately 450 communities in the three-state area in the 16-page booklet, which was prepared by the chapter's research committee, headed by W. L. Holladay.

Copies are obtainable at $1 each from the chapter treasurer, B. Lee Hutchinson, 6824 Vineland, North Hollywood, Calif.

Both summer and winter recommended design temperatures are listed for each community, and for several other data is also provided.

In a preface the committee explains:

"For summer, the recommended dry-bulb and wet-bulb temperatures correspond to those which have been equalled or exceeded 2½% (73 hours) of the total time during June through September of a normal year. To change dry-bulb temperature to the 1% level, add about 3°; to change wet-bulb temperature to the 1% level, add about 1°.

"For winter, the recommended design temperature corresponds to the average annual minimum (the average of the lowest temperature recorded each year for the period of record), and when averaged over many stations, corresponds also to design temperatures in common use."

The committee also points out that "'Design Temperatures' do not represent the most severe conditions which have ever occurred. In the case of wet-bulb temperatures particularly, the figures shown may be exceeded by 4° or 5° several hours a year, and evaporative type equipment will react accordingly."

Corrosion Report Issued

PITTSBURGH — Results of eight-year corrosion tests on wrought iron and 10 structural steels in salt water and lake water environments are contained in a 12-page report available from the Engineering Service Dept., A. M. Byers Co., Pittsburgh 22.

Raypak Doubles Production Space

EL MONTE, Calif. — In a major expansion, Raypak Co., manufacturer of gas-fired boilers, has doubled manufacturing space at its plant here.

An additional 15,000-sq. ft. of space at 2231 Chico St. is already being used for a high-capacity motorized assembly line and for casting of boiler combustion chambers, according to firm president, Alfred Whittell, Jr. General offices of Raypak are also located at the new site.

The area which previously housed the entire Raypak factory, located at 2416 Chico St., consists of three large buildings which now house Raypak's sheet metal fabrication factory, in-process warehousing, etc.

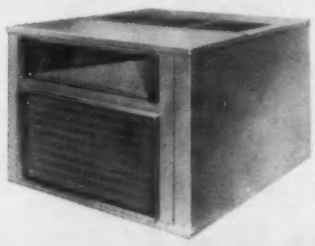
Engineering, production, research and development, and purchasing departments will occupy the former Raypak offices.

CARRIER CLIMATE CENTER

Another Carrier first. Dramatic Climate Center enables the homeowner to tell his weather at a glance, dial the climate he likes best, also make sure his air conditioning system is operating efficiently and economically. All this from an 8 x 14 inch satin aluminum panel that installs easily between the studs in any room.

CARRIER ROOM AIR CONDITIONERS

The Royal Family of Air Conditioning, with power models for the largest rooms... prestige models for the finest homes... promotional models for price-conscious buyers. Twenty-two models, from the ½-hp "carry home" Portable to the super-powered 2½-hp Imperial provide a model for every prospect.



CARRIER HEAT PUMP WEATHERMAKERS

The line is complete from ½ ton to 10 tons. It includes a Portable for a single room, one-piece units for smaller homes and two-piece models for larger homes. The larger models feature "Climate Balanced Design," which provides maximum working efficiency over the entire range of year-round temperatures.

ONLY A CARRIER DEALER HAS EVERYTHING

for residential air conditioning!

RACCA of So. California Survey Shows Why Contractor Must Get $8.50 Per-Hr. for Service

LOS ANGELES—If the average air conditioning and refrigeration contractor in this area wants to make a 10% profit on his service work, he will have to charge the customer $8.50 as a base rate, it has been indicated in a survey made by Refrigeration & Air Conditioning Contractors Association (RACCA) of Southern California, Inc.

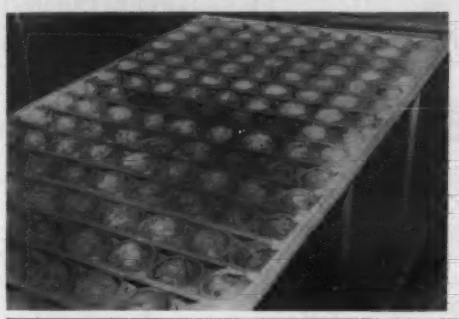
Service Committee of the association conducted a survey among 10 contractors on their costs of one hour of service. The following are the averages for the various items of cost:

Direct Labor	**$4.81**
Truck Expense	**1.00**
Lost Time	**.18**
Overhead	**1.645**
Total	**$7.635**

Thus, in order to achieve a 10% profit, the $8.50 rate would be necessary.

Thanks To Contractor's Ingenuity

All's Quiet In The San Fernando Valley Library



SOUND TRAP constructed of G-B Snap*on pipe insulation eased the sound problem in the San Fernando Valley State college library. It is said to provide the necessary acoustical protection while requiring minimum maintenance.

NORTH RIDGE, Calif. — Thanks to an imaginative air conditioning contractor and his unique use of a glass fiber pipe insulation product, all is quiet for users of the new library at San Fernando Valley State college, it was reported recently.

In planning the new building, it was realized that the air conditioning equipment posed a threat to the kind of silence so necessary in a library. Originally, the plan to solve this problem called for construction of a sound trap made of rigid board type insulation.

Personnel of Nelson Refrigeration Co., the air conditioning contractor, figured they had a better solution to the problem, and one that would cost less.

Their solution called for the use of pieces of a glass fiber pipe insulation in construction of the trap. The product is designed for thermal, not acoustical, insulation. The contractor, however, reasoned that its 100% glass fiber construction, with millions of tiny sound absorbing cells, would provide excellent db reductions.

Both Nelson Refrigeration and college officials agree the new sound trap provides desired acoustical protection while requiring minimum maintenance. The pipe insulation, called "G-B Snap*on," is manufactured by Gustin-Bacon Mfg. Co.

Phoenix Firm's Installations Show Wide Range

PHOENIX, Ariz. — From a school which will be air conditioned with 21 heat pumps, to a 5-zone system for a residence using chilled water and electric resistance heat, some of the current jobs being done by Conditioned Air Co. here, headed by Paul A. Engebretson, are representative of the wide range of air conditioning applications in the Phoenix area.

The 21 Carrier heat pumps, providing a total of 140 tons' cooling capacity, are for a new elementary school in Scottsdale.

In many of the larger jobs, chilled water systems are finding favor, Engebretson says. He is installing multizone units with chilled and hot water in such buildings as the Mesa Library, St. Vincent DePaul Church, and the Decker apartments.

However, the new Red Dog restaurant in Scottsdale, with early western decor and 24-ft. ceilings, is being done with a 25-ton packaged air conditioner.

The 5-zone residential system was installed in a large ranch-type home in the Paradise Valley section. The installation includes a 15-ton chilled water system and electric resistance heat for five zones.

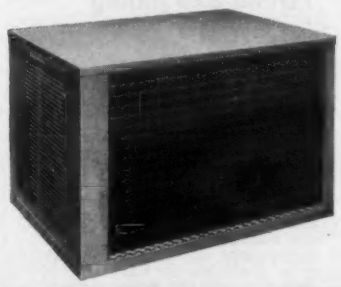
State Building Annex In San Francisco Gets High Velocity System

SAN FRANCISCO — Eight divisions of the state Dept. of Industrial Relations have moved to the completely air conditioned new State Building Annex at 455 Golden Gate Ave. here.

The air conditioning is a high velocity double-duct system from equipment rooms, two on each floor, with a separate exhaust system to the roof.

Hydronic heating and cooling from boilers and chillers in the basement serves the equipment rooms where there is ventilation, filtering, and humidity control.

Johnson Service Co. is doing a two-month critical temperature balancing of the air conditioning, required by the state contract.

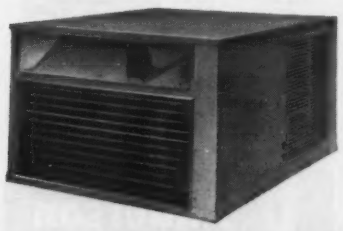


CARRIER OUTDOOR REFRIGERATION SECTIONS

These versatile air-cooled units can be combined with various indoor cooling coil sections to provide summer air conditioning in new and existing homes. Often teamed with Carrier forced air furnace for year-round service. Can be installed almost anywhere—rooftop, yard or breezeway. Capacities: 1.8 to 10.7 tons.

CARRIER AIR PURIFIER

Latest product of Carrier research, this sensational new unit cleans the air and humidifies in winter. Through a unique self-cleaning process, it filters the air of odors, removes pollen and other harmful elements. Easily attached to a forced air furnace or air conditioning system. The newest Carrier exclusive for Carrier dealers.



CARRIER UNIVERSAL WEATHERMAKERS

Here's a summer air conditioner that can provide central cooling for the average new or existing home at relatively low cost. Important savings result from the unit's compact one-piece design. It can be installed indoors or outdoors in more than a dozen different ways. Its capacities range from 2 to 5 tons.

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TECH CENTER

by Frank J. Versagi, Technical Editor

Applied Electrical Theory (Part 16)

Motor Starters

In the discussion of single-phase induction motors, it was mentioned that some device must be used to disconnect the starting winding, in most cases, when the motor attains about ¾-speed.

(While magnetic and transformer-type starters are used on larger 3ϕ equipment, their major functions — other than on/off duty—are to protect the equipment and lines from excessive current draw during starting and running and to protect motor and operator from hazardous conditions possibly caused by voltage fluctuations.)

Except for the PSC, permanent split capacitor-motor, single-phase motor starting mechanisms must conduct current into the starting winding at the beginning, then interrupt the current when it is no longer needed. Too, a more sophisticated starter may have overload protection built into the same control.

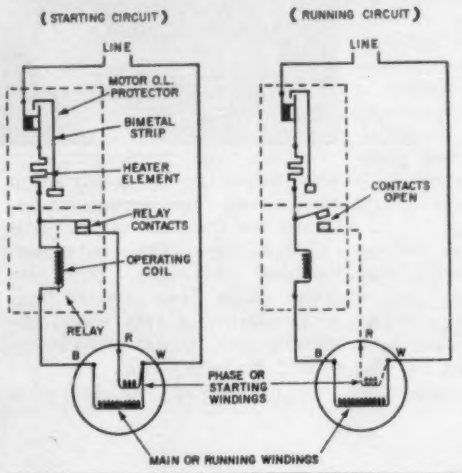

FIGURE 1

On open-type motors, the most common starting mechanism is a **centrifugal** switch of some sort. With the motor at rest, electrical contacts in the switch are closed so that when line power is applied, current passes through the contacts to the starting winding. As the motor gains speed, centrifugal (outward) force on the switch mechanism increases until it overcomes the spring tension which is holding the contacts closed. At a predetermined setting, the contacts fly open removing the starting winding from the circuit.

Centrifugal switches used in 2 and 3-speed motors must be carefully designed so as not to cut in the starting winding at the lower operating speeds. Another consideration: While 60-cycle, 3ϕ motors will operate satisfactorily on 50-cycle current—delivering the rated load with a higher than normal operating temperature and at 5/6 of 60-cycle speed—single-phase, 60-cycle motors are not usually adapted because the centrifugal switch in this case would operate at too high a speed for the motor application.

No matter how carefully designed is a centrifugal switch, it will occasionally malfunction and need repair. Also, the contacts points will burn and arc as they wear. Both these factors preclude the use of a centrifugal switch in a hermetic motor, for in such a sealed unit the mechanism will be inaccessible, and the oil-refrigerant mixture surrounding the points would render them ineffective in time. Further, any spark or arc in a system would cause and/or speed up undesirable chemical reactions.

Therefore, external starting switches, **relays,** are used for hermetic applications. **A relay is an electrically controlled device that opens and closes electrical contacts to effect the operation of other devices in the same or in another electrical circuit.** In practice, the term normally applies to magnetically or thermally operated devices.

It is a relay which programs the color changes of a traffic light. One may hear the relay operate if he is standing close to the control box which is usually mounted on a pole at some corner of the intersection.

A magnetic relay is an electrically operated switch which consists of an electromagnet and a movable arm. When current flows through the coil, the armature is attracted to the core of the magnet. This motion can be caused either to make or break an external electric circuit. When the coil is de-energized, a return spring pulls the armature back to its original position.

Of the electromagnetic relays, there are two types—the current-type and the voltage-type.

Fig. 1 is used by one manufacturer to explain the operation of a current-type relay.

The wire size and number of turns in the electromagnet (operating coil) must be designed according to the horsepower rating of the motor to which it is connected. The moving contact arm is made of an easily magnetized and demagnetized material. Current is supplied to the relay through the overload protector and to the starting winding through the relay contacts.

Contacts in current-type relays are NORMALLY OPEN. When the external circuit is closed (as by a thermostat) all of the current to the main motor winding passes through the overload protector and the solenoid coil. Since the motor cannot start by the running winding alone, a locked rotor condition exists momentarily causing high current to flow through the entire circuit.

The high current produces a strong magnetic field in the relay and the moving contact is attracted, closing the parallel path through which current can now reach the starting winding.

As the motor approaches its rated speed, the current demand drops and the coil's magnetic field becomes too weak to keep the contacts closed. Under favorable conditions, the relay contacts are closed only for a few seconds each time the motor starts.

(Continued on next page)

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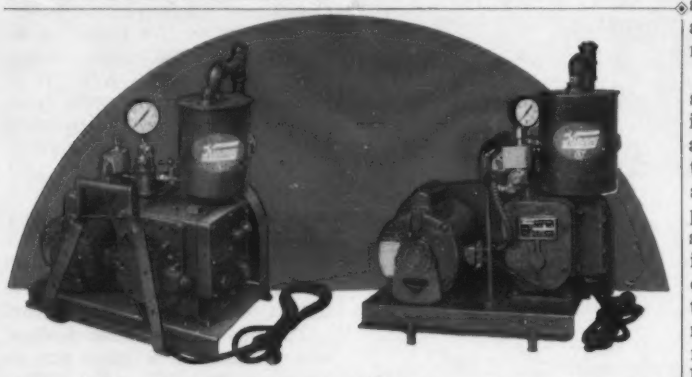

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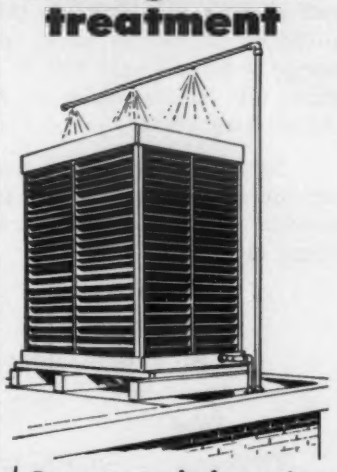

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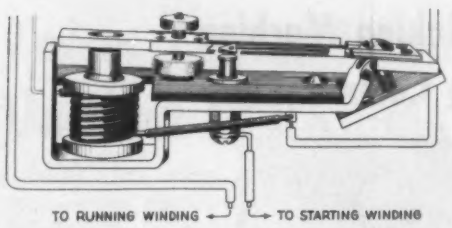

FIGURE 1-A

(Continued from preceding page)

Voltage-type relays actuate by counter-emf, rather than by line starting current.

Like current-type relays, they have a solenoid coil and an armature. In this case, the solenoid coil has a voltage rating higher than line voltage; for a 230-volt application, the solenoid may have a 265-volt rating, as an instance.

The contacts in a voltage-type relay are NORMALLY CLOSED.

The relay coil is designed to open the contacts at one voltage and to reclose them whenever the voltage drops below design level.

When the motor starts, counter-emf quickly increases in the starting winding. This causes an increase in voltage and current through the relay coil. When the design voltage of the coil is reached, the current has produced a strong enough electromagnet to attract the armature and open the contacts.

During the running cycle, the voltage and current remain high enough to keep the contacts open.

When the motor circuit is opened, voltage and current decrease rapidly. As the voltage drops below the design point, the contacts reclose and remain so in readiness for the next start.

* * *

As indicated in the preceding discussion, an overload protector can be incorporated into the starting relay. Essentially, a **thermal overload relay** depends upon the expansion/contraction/warpage/melting of a metallic or bimetallic element to open a circuit when it is overheating. The relay may or may not be designed to reset automatically after an overload.

Next: INDUCTANCE-CAPACITANCE-REACTANCE

file guide—ELECTRICITY: motor starters

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5 Major Dairies Ask Dismissal of Anti-Trust Suit

SAN FRANCISCO—Five major dairies have asked Federal Court to dismiss a $2,355,000 treble damage anti-trust suit against them on grounds that the court lacks jurisdiction because no anti-trust violations are shown in the complaint.

The suit, filed last January by Red Top Dairy Products, Inc., Vallejo, Calif., and 10 other independent dairies of California and Nevada, charges The Borden Co., Foremost Dairies, Inc., Beatrice Foods, Arden Farms, Inc., and Equipment Enterprises, Inc., with violations of the Sherman and Clayton Anti-Trust Acts.

Among other things, plaintiffs accuse defendants of furnishing equipment to retailers and financing construction or refurbishing, in return for exclusive handling or preferential treatment of their products.

Attorney Julian O. Von Kalinowski, representing Arden Farms, argued that the plaintiffs' complaint contained no allegations that any action of defendants damaged or injured plaintiffs or that defendants' practices constituted a restraint of interstate commerce, tended to lessen competition or had created a monopoly.

Jurisdiction of the court was not established, Kalinowski contended, by charging that defendants operated their national business from a home office, that money from each corporate treasury was disbursed and transmitted to other states, or that equipment and advertising material were transported across state lines to retailers.

The lawyer emphasized that there was no charge that milk, even of defendants, moved in interstate commerce.

"This seemingly simple complaint," he remarked, "presents an impenetrable tangle of complexity, mixing together within nine papers a welter of different claims."

Beatrice Foods had filed an answer to the complaint denying any violation of the anti-trust laws and contending the suit failed to show any violations, but the plaintiff's attorney, Joseph Alioto, called the Beatrice motion a "transparent effort to double-team plaintiffs by delay and procedural fencing."

Alioto considered the law well-established that the court did have jurisdiction over the suit and noted that Beatrice, by filing an answer, indicated that it did not find the complaint confusing.

Armstrong Contracting Opens New Office

SACRAMENTO, Calif. — A new office to serve the northern California area tributary to Sacramento has been opened by Armstrong Contracting & Supply Corp. at 2260 Dale Ave., North Sacramento 15.

The contracting company is a subsidiary of Armstrong Cork Co. and separate from Armstrong Cork's sales organization. John G. Murphy is branch manager of the new office.

Sacramento State College To Get Cooling, Refrigeration Equipment

SACRAMENTO, Calif.—New three and a half million dollar Engineering building will be ready for occupancy this fall at Sacramento State college.

The Mechanical Engineering wing of the building will contain a large air conditioning set-up designed for experimental purposes, as well as for instruction. There will also be a large refrigeration set-up.

The heating section of the heat-power instrument and control lab will be equipped for testing burners and furnaces.

Starting with the fall semester, the college will begin courses in the freshman and junior years of the mechanical engineering curriculum. In September, 1961, sophomore year and most senior year courses will be offered.

Emphasis will be placed on heat transfer starting with the entire junior year, according to Trever Davey.

Lawson Sheet Metal Moves

SACRAMENTO, Calif.—Lawson Sheet Metal, Inc., of which Archie Lawson is president, has moved from 105 Arden Way to a new location across the street and one block away at 58 Arden Way, North Sacramento 15.

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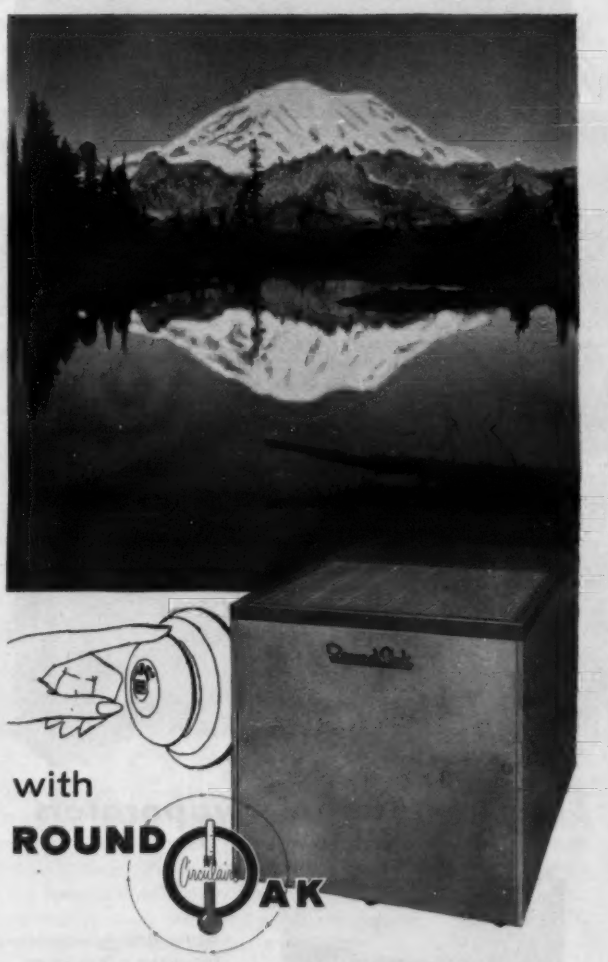

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Los Angeles Promotes Hal F. Fitzgerald

LOS ANGELES—New principal heating and refrigeration inspector for the city's Dept. of Building & Safety is Hal F. Fitzgerald. He succeeds A. B. Wicks.

Fitzgerald was senior inspector when promoted after scoring among top three in a civil service exam. He has among his duties served as instructor in the Mechanical Bureau's training program. Fitzgerald also taught evening code classes for the industry under auspices of Los Angeles Trade-Technical college.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Inland Contractors Name Don Boyer

RIVERSIDE, Calif. — Don Boyer of Los Angeles has accepted the position formerly held by J. Clifton Spradley as executive secretary of Inland Air Conditioning & Refrigeration Contractors Association.

Don L. Kissell of Los Angeles, vice president of RACCA, National, said Henry B. Ely of Los Angeles, western representative of RACCA, National, is acting as a consultant to Boyer.

Divisions Consolidated

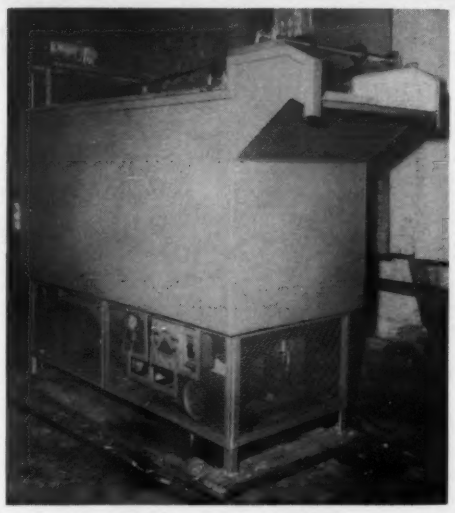
SAN FRANCISCO—Refrigeration and Crane Divisions of Cyclops Iron Works are now consolidated at the company's new location at 1490 Donner Ave., San Francisco, according to the firm.

New-Type Automatic Ice Block Making Machine Designed Specifically for Outlying Communities

PORTLAND, Ore. — What is said to be a new type of automatic block ice making machine has been designed by a Portland firm specifically to fill the needs of outlying communities dependent upon shipment of ice from metropolitan centers.

Both designer and producer, Harris Ice Machine Works has already shipped the first production model to Anaheim, Calif.

Needing only the "flip of a switch" to put it into operation, the new machine eliminates such traditional ice-making equipment as ice cans, brine, brine tanks, agitator, and thawing well, the company said.



HARRIS Ice Machine Works has developed this new-type automatic block ice making machine to fill the needs of communities dependent upon shipments of ice from metropolitan centers.

An added feature is its built-in system of purifying the ice through aeration of water, thus eliminating chlorine found in many municipal systems.

The 400-lb. capacity machine is a compact unit measuring 5 ft. in height, 6 ft. in length, and 40 in. in width. Eight cells are used to turn out 25-lb. blocks of ice. Freezing, release of the blocks, and ejection from the machine all are automatic.

Gilbert W. Harris, president of the 60-year-old firm, feels the new ice maker is especially adapted for use in tourist camps and summer resorts, or any location remote from ice supplies.

"This unit," Harris explained, "not only makes block ice in 25-lb. blocks, but can be set to freeze shell ice in any thickness the time clock is set for, which is broken up after leaving outlet. An example," he continued, "would be clock set at 11 hours would freeze 25-lb. blocks, and clock set at 4 hours freezes ¾-in. shell ice. Cube ice can be made in any cell by putting in cube trays."

He added that a patent has been applied for.

The Harris machine is the result of a year's research and a development cost of some $26,000, it was stated. The company plans on national sales "by selling to anyone interested in all States of the Union except the Pacific Northwest, which the trade will expect us to furnish with other equipment we manufacture," Harris said.

The machine is available for both ammonia and halogenated refrigerants, and can be connected to any plant that operates below a 5-lb. suction pressure, according to the company.

The manufacturer also said that all mechanical parts are located for easy maintenance. The water inlet flow control is ready for water connections; overflow and drain lines ready for drain connections, and frosted or sweat lines are insulated. Electrical equipment is wired to a central control panel. Rustproof construction is also emphasized.

Watsco Describes 'Cappy'

HIALEAH, Fla.—A brochure describing "Cappy," Watsco's new pocket size capacitor tester, is being offered to the trade.

Cappy is an electronic instrument designed to provide a quick and simple means to test all types of capacitors and condensers, it was pointed out.

Watsco, Inc. is located at 1020 East 15th St., Hialeah, Fla.

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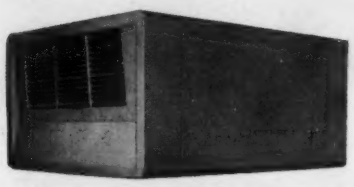

Model CH Ceiling Unit . . . for air-conditioning stores, offices, restaurants, etc., with maximum efficiency in minimum space. Available in 2, 3, 4, 5, 7½ and 10 tons.

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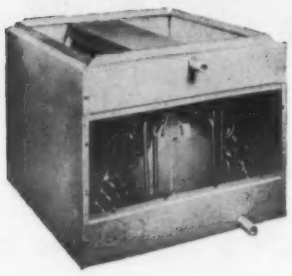
Model ACS Air-Cooled Condenser with built-in Sensitizer which adjusts automatically to seasonal weather changes. Available in 2, 3, 5, 7½, 10 and 15 ton sizes.

...Residential Evaporators



Model BAV Residential Evaporator with two drain pans for mounting in "A" position above furnace or in "V" position below counter-flow furnace. Available in 2, 3, 4, 5 and 7½ ton capacities.

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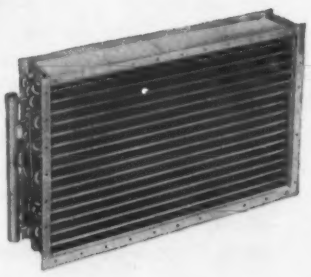

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Kaiser Center Features Aluminum Ducts; Unusual Fabricating Methods Described

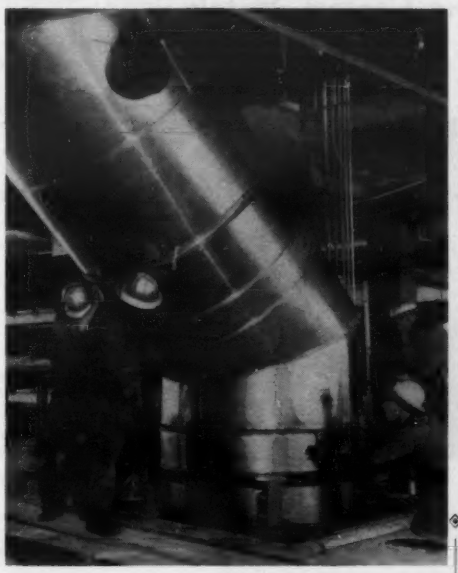
OAKLAND, Calif.—What is described as one of the largest installations of aluminum ventilating duct has been placed in the 28-story Kaiser Center here.

The air control system of this structure, claimed to be the largest office building west of Chicago, uses approximately 300,000 lbs. of aluminum duct sheet—ranging in thickness from .025 to .050—supplied by Kaiser Aluminum & Chemical Sales, Inc.

The aluminum sheet has been fabricated into ventilating duct by the Scott Co. of Oakland. This company has devised some unusual methods of fabricating and handling the aluminum, it was pointed out. F. C. Bushell, plant superintendent of Scott Co., explained:

"We had to join and install unusually large sections of ducting—up to 63 in. in diameter—throughout the building. Due to the easy fabricating characteristics and light weight of aluminum, we were able to do the job speedily and efficiently."

For joining longitudinal and perimeter sections, Scott Co. devised special jigs—boom-like units with two arms. The top arm is the track for the welding machine and the bottom arm is the holding fixture.



THIS 63-IN. DIAMETER DUCT is part of the all-aluminum ventilating system going into the 28-story Kaiser Center, Oakland, Calif. In this picture workmen are shown making a field joint on part of the main risers. Advantages of aluminum in this installation are light weight, ductility, corrosion resistance, less friction and heat loss—all of which contribute to lower fabrication, maintenance, and operating costs.

The holding fixture consists of a steel pipe with a copper strip on top. Rolled aluminum sheet—flanged and open at the seam—is placed around the fixture, with the seam resting on the copper. The seam is closed by fusing; no filler material is required.

As the Heliarc (tungsten inert gas) welder runs along the track and fuses the seam, water is pumped through the steel pipe to cool the copper bar. With a setup like this, the seam can be used at 80 in. a minute, it was reported.

The setup for perimeter welding is similar, except the holding fixture has angle iron arms that extend by compressed air until they meet the sides of the duct. These arms can extend from 6 to 63 in. diameter. Three 4-ft. sections of round duct are fused to form a 12-ft. section.

Scott Co. also has made special provision for joining these 12-ft. sections. A roller stretches the ends about 1¾ in. to allow for a field joint. This joint is filled with tough bond cement and taped with Arno tape, a plastic-coated cotton base tape that has aluminum backing. Sheet metal screws are put in to further strengthen the joint.

Another Scott-developed device is a special punch press rig that knocks out 4-in. circles and simultaneously drills three holes in ducting where flexible tubing ties into branches.

"These were just some of the short cuts we used in fabricating the aluminum ducting," said Bushell. "All of the other work—shearing, rolling, crimping, etc.—was performed in the usual manner with standard equipment."

Aluminum's light weight paid off in transporting to the job site, it was stated. Said Frank Naisbitt, field superintendent of Scott Co.:

"We were able to load a whole wing of ducting at one time by nesting parts in a wire cage. This container was then loaded on a flat bed truck and hoisted as a unit right to the floor where we were working. As these cages could only hold up to 1,100 lbs., we could only lift aluminum in this manner. Other material would have weighed too much."

Heating and most of the cooling in the Kaiser Center is done by means of the radiant, acoustical ceiling. Since supply air is used for ventilation and supplemental cooling only, the maximum temperature differential is only about 15°, it was pointed out.

"This makes expansion and contraction a minor factor in design," according to Kaiser Aluminum & Chemical Corp. "The weight of the vertical duct—63 in. in diameter and soaring 28 stories—is carried on spring loaded hangers which tend to distribute the load evenly under all conditions.

"The 300,000 lbs. of aluminum ducting is just one segment of the extensive use of aluminum throughout the Kaiser Center. All told, there will be more than 2,000,000 lbs. of aluminum used—from aluminum curtain wall to electrical conductor to hardware of all kinds. This adds up to more than two pounds per square foot of aluminum used in the building."

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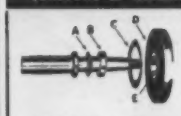

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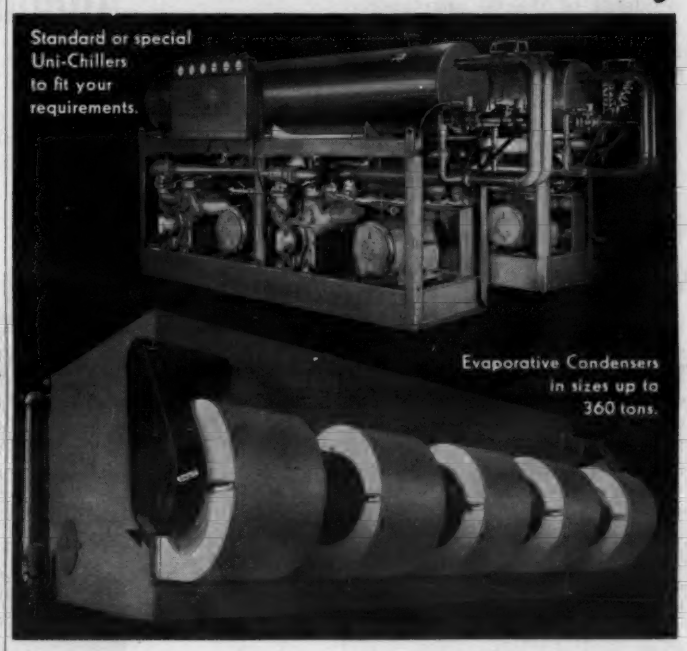

Vilter units for many air conditioning applications are designed to make every dollar count in increased performance, more economical operation, longer life, a more compact installation, and a minimum of maintenance. Years and years of research went into the design of the famous VMC Compressor and Equipment, and this research is continuing at an intensified pace—all aimed at making the VMC Compressor the most durable and efficient on the market.

Uni-Chillers—Each of the special Vilter self-contained units (shown above) consists of two compressors and 75 hp motors, condenser, water chiller and controls. The capacity of each Uni-Chiller is 150 tons. Completely factory-assembled. Compact Uni-Chillers are available in sizes from 10 tons upward.

Evaporative Condenser—The externally mounted fan of the VXF evaporative condenser (shown above) does not handle moist saturated air from the spray chamber—minimizes corrosion and extends fan life. The Evaporative Condenser saves 90 to 95% in water costs. Permits larger compressor installations where water is scarce. Low pumping cost as compared to cooling tower installation. Capacities of 30 through 360 tons.

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Blossoming Phoenix

With City's Growth Comes New Need for 'Big Building' Type Air Conditioning for Apartments, Shopping Centers, Hotels

PHOENIX, Ariz. — Not too long ago the problems of air conditioning in Phoenix, particularly those concerned with 24-hour occupancy by humans, was confined primarily to single or two-story dwellings. Rarely were problems encountered of the type found in the East in terms of multi-story, around-the-clock occupied "big buildings."

That situation no longer exists, as the inrush of population into the Phoenix area has brought about demand for housing facilities of the apartment type. Thus a new Phoenix landmark is the Phoenix Towers cooperative apartment building, at the time of its construction the tallest and largest residential structure ever built in Arizona, rising 14 floors and 140 ft. into the air and affording the residents of the 60 apartments an incomparable panorama of Phoenix and the surrounding beauty of mountains and desert.

The Phoenix Towers building is air conditioned, of course, and the design of its system takes into account the fact that there are big swings in the outside temperature within a few hours, and that the sun load is a greater factor than in other parts of the country.

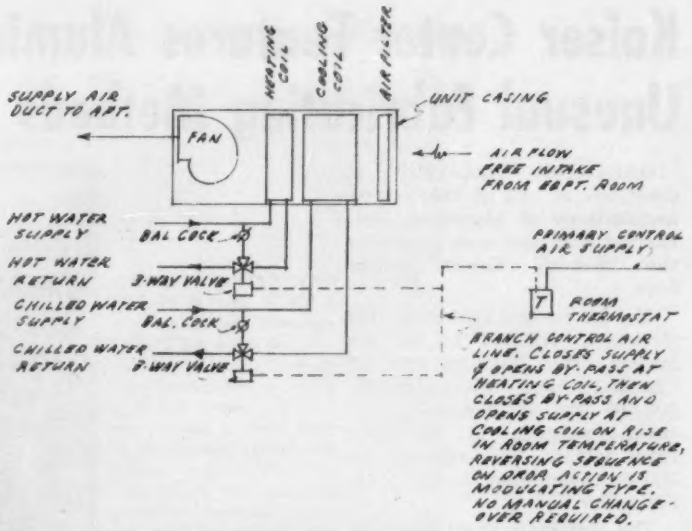
Installed by the Frank Harmonson Co., the Worthington air conditioning system literally can furnish cooling to one end of an apartment while the other end is being heated simultaneously by means of a double circuit system that provides circulated chilled and heated water at all times.

Apartment dwellers on the south side of the building may need cooling certain times of the day, while those on the north side may need heating. This feat is accomplished by means of an especially designed heat exchanger unit, with a six-row deep cooling coil, and a two-row deep heating coil. A three-way mixing valve controls the flow of water through both cooling and heating coils.

Two Worthington reciprocating compressors with individual condensers and chillers arranged in two separate circuits comprise the air conditioning system. The machines are loaded and unloaded by solenoid valves located on the compressors and are controlled by the chilled water temperature. The refrigeration cycle is started from a thermostat located in the chilled water line leading to the chillers.

This operates in the following manner. A thermostat with its

SPECIAL, SEPARATE DUCTS for each apartment supply conditioned air through wall registers near ceiling level in Phoenix Towers cooperative apartment. Cooling can be provided for some apartments while heating is provided for others by means of an especially designed heat exchanger unit (with cooling and heating coils and three-way liquid mixing valve), and through by-pass arrangements at the branch air supply.


HEATING COIL
COOLING COIL
AIR FILTER
SUPPLY AIR DUCT TO APT.
UNIT CASING
FAN
AIR FLOW FREE INTAKE FROM APT. ROOM
HOT WATER SUPPLY
BAL. COCK
HOT WATER RETURN
3-WAY VALVE
CHILLED WATER SUPPLY
BAL. COCK
CHILLED WATER RETURN
3-WAY VALVE
PRIMARY CONTROL AIR SUPPLY
T
ROOM THERMOSTAT
BRANCH CONTROL AIR LINE. CLOSES SUPPLY & OPENS BY-PASS AT HEATING COIL, THEN CLOSES BY-PASS AND OPENS SUPPLY AT COOLING COIL ON RISE IN ROOM TEMPERATURE, REVERSING SEQUENCE ON DROP. ACTION IS MODULATING TYPE. NO MANUAL CHANGE-OVER REQUIRED.

TYPICAL APARTMENT CONTROL for individual dwelling units in Phoenix Towers is shown here. With a separate air tempering and air handling unit for each apartment, a branch control air line on a rise in temperature closes supply and opens by-pass at the heating coil, then closes by-pass and opens supply at the cooling coil, reversing the sequence on a drop in temperature. Action is modulating type, no manual change-over required.

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New all-in-one control

Existing Air Conditioning Control Systems require the manufacturer to provide two control panels—one at the condensing unit and one at the indoor fan system. This means extra field wiring is needed and that a user must allow for the additional man-hours of work required to supervise two panels.

New Honeywell Control Center Panel includes *all* components necessary to control two- and three-ton air conditioning units and is available from stock. Easier to install, wire and service.

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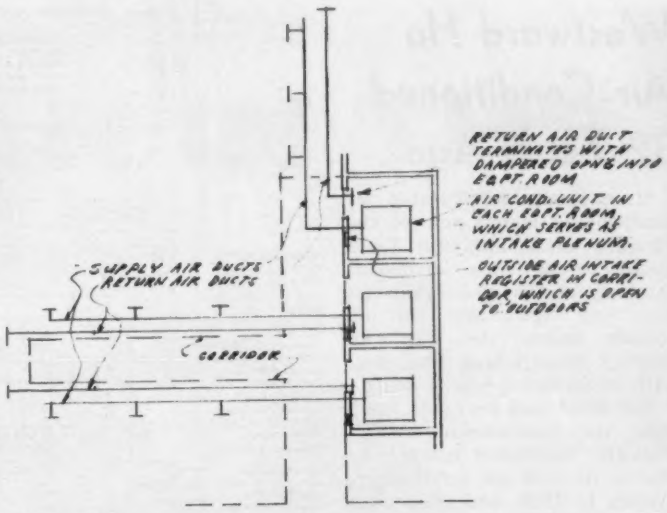
insertion bulb in the chilled water supply increases branch line air pressure on a rise in temperature, closing step-controller switches in sequence.

Compressors Can Operate With 50% Capacity Reduction

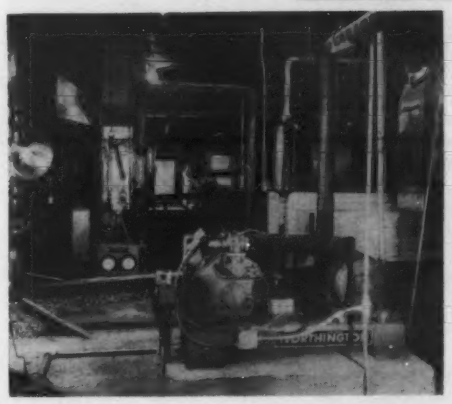
Electrical connections from switches open solenoid valves and start the compressors. Each compressor can operate with a 50% capacity reduction regulated by a suction pressure switch.

For the hot water supply, a thermostat with the insertion bulb in the hot water supply varies the branch line air pressure to regulate an automatic stem valve so as to control the hot water temperature. The temperature of the hot water is regulated to compensate for changes in outside temperature.

Each apartment has its own individual supply and return ducts leading from the remotely located air conditioning units. The control for the branch air supply, at a rise in temperature closes the supply and opens the by-pass at the heating coil, then closes the by-pass and opens the supply at the cooling coil. This sequence is reversed upon a drop in temperature. Action is of the modulating type, with no manual changeover required.


RETURN AIR DUCT TERMINATES WITH DAMPERED OPNG. INTO EQPT. ROOM
AIR COND. UNIT IN EACH EQPT. ROOM, WHICH SERVES AS INTAKE PLENUM.
OUTSIDE AIR INTAKE REGISTER IN CORRIDOR WHICH IS OPEN TO OUTDOORS
SUPPLY AIR DUCTS
RETURN AIR DUCTS
CORRIDOR

DIAGRAMMATIC DUCT layout for half a typical residential floor in the Phoenix Towers cooperative apartments. Return air duct terminates with a dampered opening into the equipment room, in which the air tempering units are installed. Each equipment room serves as the intake plenum. The outside air intake register is off the corridor, which is open to the outdoors.



COOLING FOR PARK CENTRAL shopping center in Phoenix is supplied by these two Worthington compressors. The two machines are loaded and unloaded by a suction pressure regulator which operates the unloaders through a step controller. A manual sequence switch allows the operator to change the lead machine.

Center's 47 Shops Individually Air Conditioned

In keeping pace with the rapidly expanding city and increasing populace, several shopping "cities" have blossomed like desert flowers around the outskirts of Phoenix. Probably thes best known of these "retailing metropolises" is the Park Central Shopping Center, and naturally it is completely air conditioned.

Spread over 47 acres, the $10 million Center provides more than 430,000 sq. ft. of shopping area with parking facilities for 5,000 automobiles. Each of the 47 stores constituting Park Central is individually air conditioned by Worthington systems ranging from package commercial units to central systems in hundreds of tons' cooling capacity. Total amount of cooling capacity in the systems serving the entire shopping center is more than 1,500 tons.

Probably the most interesting of the individual installations, and the largest, is that for Goldwater's Department Store, where 220 tons of cooling capacity are supplied by two Worthington reciprocating compressors.

The entire air conditioning system and refrigeration system with the exception of the boiler and the fur vault is started by a 24-hour time clock. The time clock arrangement is a 7-day, 24-hour program timer that stops and starts the system at pre-set days and time.

The boiler runs continuously until the outdoor temperature reaches 70° when it is automatically shut off. The fur vault system is started and stopped manually.

The refrigeration system and its control system are interlocked with the main supply fan in such a way it is inoperative unless the fan is running. The refrigeration cycle is started from a thermostat with its bulb located in the cold plenum. The two machines are loaded and unloaded by a suction pressure regulator which operates the unloaders through a step controller. A manual sequence switch allows the operator to change the lead machine from one to the other.

Head pressure control is maintained by a pressure switch in the head pressure line which will turn the evaporative condenser fans off and on in accordance with demand. Evaporative condenser pumps are started by the cold plenum ther-

(Continued on next page)

panel for central air conditioning

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75 YEAR — CELEBRATING THE FUTURE

Blossoming Phoenix--

(Continued from preceding page)
mostat and must be running before the refrigeration machines can run.

How water supply temperature in the air conditioning system is raised and lowered by an anticipating thermostat. The hot plenum temperature is varied in accordance with the anticipated demands of heat requirements for the building, this being accomplished by the outdoor anticipating thermostat.

Constant static pressure difference is maintained between the main hot and cold air ducts supplying the zoned area of the building.

A constant temperature of 55° F. is maintained in the mixed air chamber to the main supply fan. When outdoor temperatures are in the range of 55 to 80° a 100% fresh air supply is used in the system, but when the outdoor temperature rises above 80° F. a minimum amount of fresh air is used.

Room and space temperatures are maintained by a room thermostat which will mix the proper quantities of hot and cold air by means of a zone mixing damper to maintain the desired conditions.

Entrances to the store are kept at proper temperatures by an electric room thermostat which will turn strip heaters on as required.

The fur vault has its own separate system where temperatures and excess relative humidities are controlled. The room thermostat will maintain temperature by operating a strip heater and refrigeration cycle in sequence. Excess relative humidity is kept under control by a humidistat.

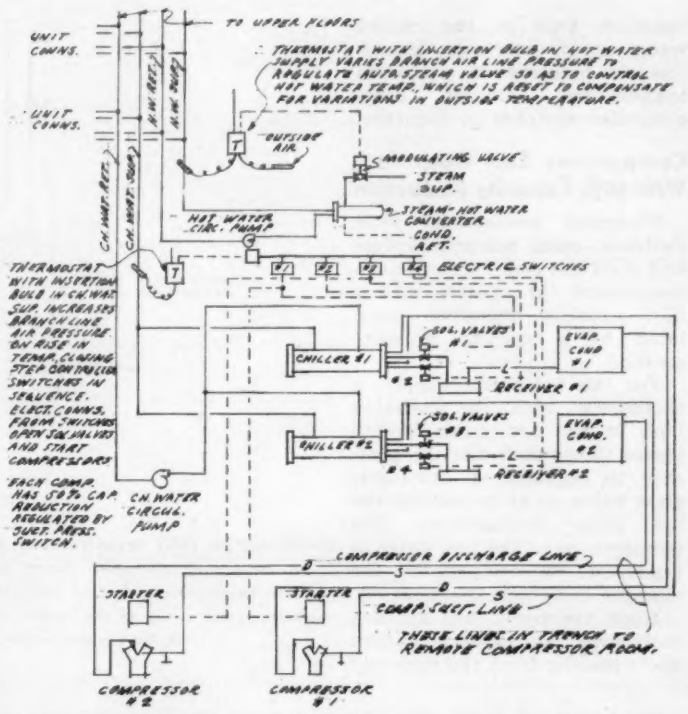
Westward Ho Air Conditioned 32 Years Ago

Mechanically refrigerated air conditioning is not new to the Phoenix area, although there seems to be some erroneous thinking to the effect that not too long ago — and for all periods before the war — all comfort conditioning was done with evaporative-type cooling.

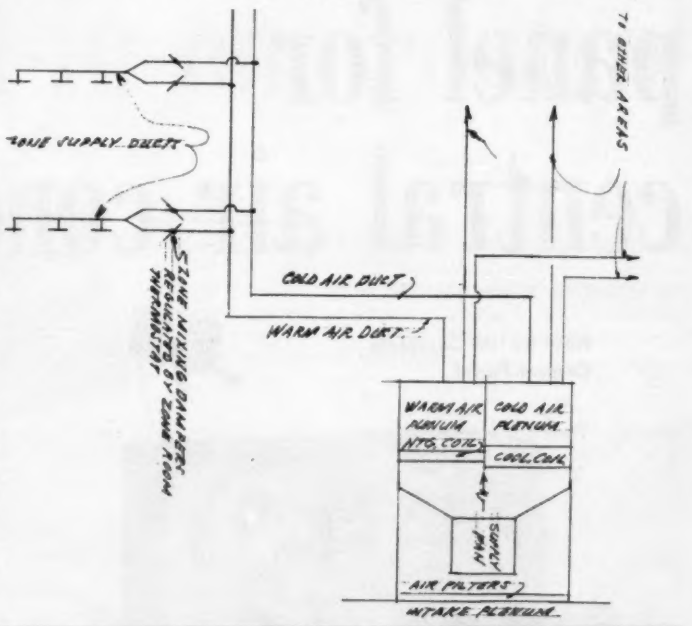
The Westward Ho hotel, probably the best-known of the Phoenix "downtown hotels," installed its first air conditioning system in 1928, and thus must have been among the first hotels in the country to install it. With the population expansion the Westward Ho expanded, enlarging its facilities to over 500 rooms and increasing the capacity of its air conditioning system to more than 735 tons.

Air conditioning for the main building's 350 rooms is supplied by a 300-ton Worthington centrifugal compressor. For the banquet and main dining rooms 200 tons of cooling is furnished by four Worthington reciprocating compressors through a direct expansion system.

A new wing of the main building has 150 patio suites air conditioned by two 75-ton Worthington package chillers. Chilled water for the patio suites is circulated through three spray tanks and then to the rooms through the coils.


TO UPPER FLOORS
UNIT CONNS.
THERMOSTAT WITH INSERTION BULB IN HOT WATER SUPPLY VARIES BRANCH AIR LINE PRESSURE TO REGULATE AUTOMATIC STEAM VALVE TO CONTROL HOT WATER TEMP. WHICH IS RESET TO COMPENSATE FOR VARIATIONS IN OUTSIDE TEMPERATURE.
OUTSIDE AIR
MODULATING VALVE
STEAM SUP.
HOT WATER CIRC. PUMP
STEAM-HOT WATER CONVERTER
COND. RET.
ELECTRIC SWITCHES
CH WATER RET.
CH WATER SUP.
THERMOSTAT WITH INSERTION BULB IN CH. WAT. SUP. INCREASES BRANCH LINE AIR PRESSURE ON RISE IN TEMP. CLOSING STEP CONTROLLER SWITCHES IN SEQUENCE. ELECT. CONNS. FROM SWITCHES OPEN SOL. VALVES AND START COMPRESSORS
SOL. VALVES #1
EVAP. COND. #1
CHILLER #1
RECEIVER #1
SOL. VALVES #3
EVAP. COND. #2
CHILLER #2
RECEIVER #2
EACH COMP. HAS 50% CAP. REDUCTION REGULATED BY SUCT. PRESS. SWITCH.
CH WATER CIRCUL. PUMP
COMPRESSOR DISCHARGE LINE
STARTER
STARTER
COMP. SUCT. LINE
THESE LINES IN TRENCH TO REMOTE COMPRESSOR ROOM
COMPRESSOR #2
COMPRESSOR #1

CONTROL DIAGRAM FOR CHILLED AND HOT water supply for air conditioning system for Phoenix Towers is shown in this simplified drawing. Thermostat at top with insertion bulb in hot water supply varies branch air line pressure to regulate automatic steam valve to control water temperature. Thermostat (l.) with bulb in chilled water supply increases branch line air pressure on temperature rise, closing step controller switches in sequence. Switches open solenoid valves and start compressors.



SUPPLY AIR SYSTEM for Park Central Shopping Center in Phoenix is diagrammed in this drawing. Constant temperature of 55° F. is maintained in the mixed air chamber to the main supply fan. When outdoor temperatures are in the range of 55 to 80° F. a 100% fresh air supply is used in the system. But when the outdoor temperature rises above 80° F. a minimum amount of fresh air is used. Room and space temperatures are maintained by a room thermostat which will mix the proper quantities of hot and cold air by means of a zone mixing damper to maintain the desired conditions.

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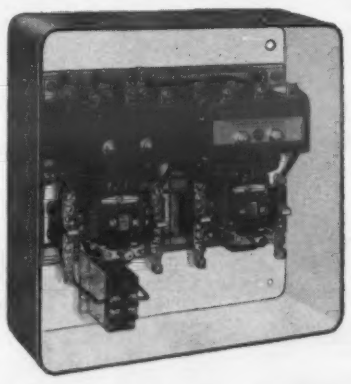

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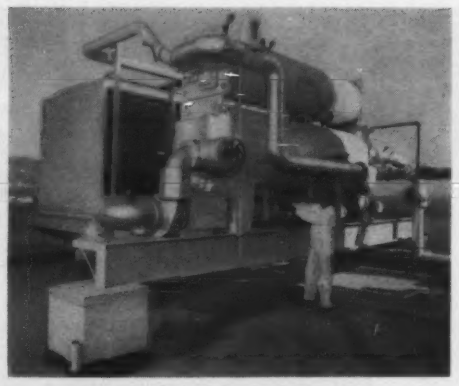
• Heating	• Commercial
• Refrigeration	• Industrial



INSTALLED ON THE ROOF of the California Bank building in Los Angeles is 100-ton York lithium bromide water chilling system with cooling tower mounted on same structural platform.

Pacific Region Shows Interest In 'Piggy Back' Combination System

LOS ANGELES—Outlook for all types of air conditioning in the Pacific region — embracing the eight western continental states and Alaska — are excellent, C. P. Strickland, Pacific regional manager for the Engineered Machinery Div., York Div., Borg-Warner, declares.

Strickland recently returned from a tour of the territory during which he appointed a number of sales agents.

"There seems to be considerable interest in gas air conditioning throughout most of the region," reports Strickland. "These require absorption units or combination absorption and steam turbine driven centrifugal cooling units.

"First of these combination —or "piggy-back" systems in the Los Angeles marketing area is now being installed by York in cooperation with Western Air & Refrigeration Co. at the University of California, Los Angeles.

"It totals about 750 tons and employs a steam turbine driven York turbomatic centrifugal water chilling unit with a York lithium bromide absorption water chilling unit.

Strickland commented that while there are no extremely large air conditioning installations on the West Coast there are a great many systems being installed and on the design boards, in a 150-500-ton range.

"Exception to that," he said, "is at the Los Angeles International Airport now under construction. Central heating and refrigeration plant is being constructed by Scott Co. in a joint venture effort with Diversified Builders, Inc.

"Two York 1,500-hp. synchronous motor driven centrifugal water chilling systems are being installed along with one 400-ton lithium bromide absorption unit."

In another recent project, a 100-ton York lithium bromide water chilling system, with cooling tower mounted on the same structural platform, was installed on the roof of the California Bank Building.

Strickland commented that more and more new office buildings in the West are being designed with large expanses of glass on all sides, considerably increasing the cooling requirements during winter.

"In fact, in many instances on south and west exposures, the December, January, and February cooling requirements on clear sunshiny days can be higher than the summer cooling requirements.

"This is due to the low declination of the sun and the resultant high sun load on south and west sides of glass buildings.

Brilliant Fire

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DOUBLE VALUE
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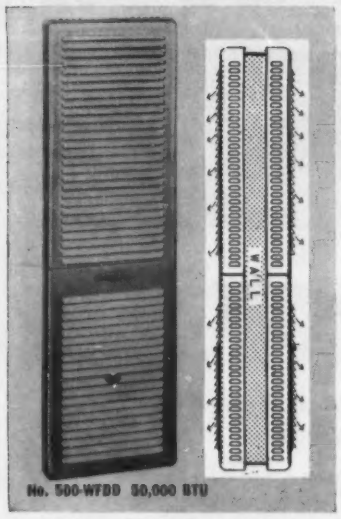
Gives Controlled Heat in TWO ROOMS



Brilliant Fire's Dual-Wall Furnace does the work of two heaters. Installs easily in the wall between two rooms. Separate controls allow 100% temperature control in each room. Ideal for small houses, apartments, offices.

Pace-setting Brilliant Fire engineering and quality. Comes complete in multi-insulated Wall Box. Projects only 3½" from wall.

One-piece castiron flame buffer assures lifetime service. 100% welded heavy gauge steel heating section assures clean, odorless heat supply. Fully guaranteed and A. G. A. approved.

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Steubenville, Ohio

Rush me full information on Brilliant Fire wall heaters.

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Street:
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Heat Pump with Dual-Duct Distribution

Meets Utility's Changing Needs

MODESTO, Calif. — A dual-duct, high-velocity air distribution system and an electric heat pump are used in air conditioning the three-story office building of the Modesto Irrigation District in Stanislaus County.

The District supplies electric power, domestic water, and irrigation water to the surrounding community.

The basement of the building has a large meeting hall which can be reached directly from the street, public rooms, mechanical equipment rooms, and rooms for other services.

The main lobby and the board of directors' room, accounting offices, and service offices are on the first floor, with lobby and directors' room extending to the second floor.

The mezzanine and second floors accommodate billing and reproduction departments, engineering offices, drafting rooms, conference rooms, and auxiliary rooms.

Makes Flexible Layout

The building has few permanent interior walls but movable metal partitions instead which—in connection with modular-grid suspended ceilings with 2 in. by 2 in. and 2 in. by 4 in. panels—results in a highly flexible interior layout.

This flexibility is matched by the flexibility of the mechanical equipment, which has been designed for easy adaptation to future changes in layout and occupancy of the building, it was pointed out.

A carefully-designed dual-duct, high-velocity air conditioning system with Anemostat sound attenuators and mixing boxes permits individual room control at all seasons, regardless of variations in thermal loads in any part of the building, according to Anemostat Corp. of America.

The ducts of the system are small and mixing boxes of the so-called "Octopus" design, which are particularly suited for use with ceilings constructed of removable panels, are installed above the suspended grid-ceiling, it was noted.

High velocity air is brought to the mixing units which have two to four outlets. The air is carried, at reduced velocities, from the mixing boxes through flexible hose connections to the supply air diffusers, which are installed in panels with the same dimensions as the other ceiling panels.

Panels, Diffusers Can Be Shifted

When the space is subdivided or re-arranged to suit changing requirements, the ceiling panels and diffusers can be shifted without changing the duct layout, making expensive alterations unnecessary (see drawing). The same arrangement is used for lighting fixtures.

The central plant of the air conditioning equipment is located in the mechanical equipment room in the basement. The fan is an American Blower Class 2, centrifugal fan, and delivers 23,000 c.f.m. at 4½-in. static pressure.

The refrigeration equipment is of special interest, because an electric heat pump is used for year-round air conditioning.

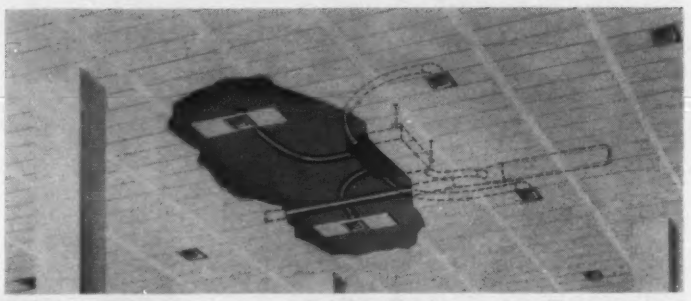
Water was selected as the heat source and sink for the installation of the Modesto Irrigation District, which is supplied by two electrically operated deep-well pumps.

Compressor Designed For Automatic Operation

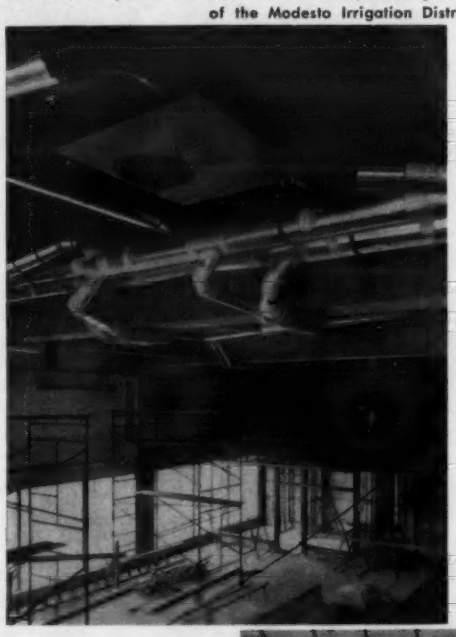
The basic element of the refrigeration system is a hermetically-sealed centrifugal compressor designed for automatic operation.

During the cooling cycle, the compressor utilizes the water supplied by the pumps for drawing heat off the air system, and conversely, during the heating cycle, the compressor utilizes the water supplied by the pumps to add heat to the air system.

The power rate is only one cent per kilowatt hour, and the heat pump system is therefore competitive in operating cost with systems using other types of fuels, it was stated.



OCTOPUS DESIGN mixing boxes, particularly suited for use with ceilings constructed of removable panels are used above the suspended grid ceiling in the office building of the Modesto Irrigation District.



LEFT: Ductwork and Anemostat high velocity units in the main lobby of the office building before the suspended grid ceiling was installed.

RIGHT: Square Anemostat diffusers dot the luminous plastic modular-grid ceiling in the lobby. Ceiling is suspended beneath rapid-start fluorescent lighting fixtures.

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HERMETIC COMPRESSOR OPENER

AUTOMATICALLY OPENS ANY HERMETIC COMPRESSOR REGARDLESS OF THE POSITION OF THE WELD

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Automatically opens any Hermetic Compressor up to 14" in diameter. **$397**

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Automatically opens any Hermetic Compressor up to 20" in diameter. **$695**

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G-E Offers Talmack Dress To April Central Cooling Buyers

TYLER, Texas—J. J. Heffernan, manager of advertising and sales planning for General Electric Central Air Conditioners, announced that G-E has launched, through participating dealers, a spring promotion called the "Smart Set."

"The 'Smart Set' offers an exclusive Talmack dress, designed for air conditioned living by award-winning John Moore, exclusively for General Electric to G-E central air conditioner purchasers during April," it was pointed out.

EXCLUSIVE MATTY TALMACK dress, designed by award winning John Moore, for General Electric Central Air Conditioners, is being given free by participating G-E dealers to customers buying G-E central air conditioning during April.

WIVES WILL KNOW TALMACK AND MOORE

"While the names, Matty Talmack and John Moore, may not be familiar to a General Electric dealer, they are mighty familiar to the wives of prospective air conditioning purchasers. Matty Talmack is one of America's most familiar names in fashion. Mr. Moore is the favorite dress designer of many film, stage, and TV stars, including Marilyn Monroe."

The fashion creation is offered free, with the purchase of a General Electric central air conditioner. The promotion is timed to lead into the Easter season. It's part of General Electric's over-all "Air of Satisfaction" program.

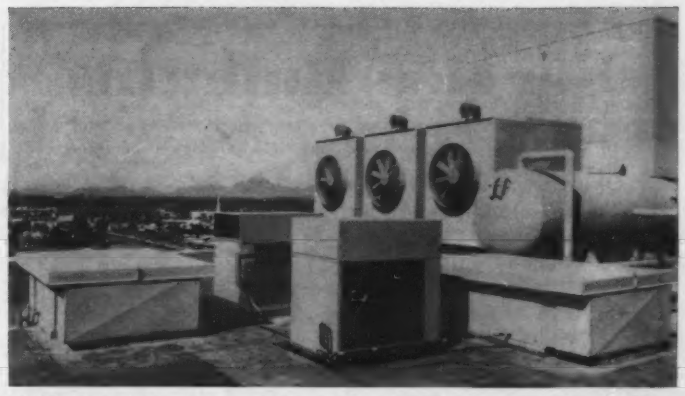
OFFER EXPIRES APRIL 30

The "Smart Set" offer will expire April 30. Air conditioning units bought during this period must be installed on or before May 15, 1960 to qualify for the dress.

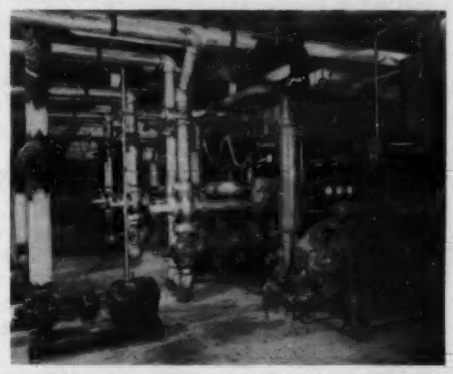
General Electric has made available through its distributors a selection of newspaper ad mats, radio and television spots, suggested direct mail, and other promotional material to help dealers take full advantage of the promotion.

The promotion also offers qualified dealers an opportunity to earn points toward the General Electric "Bermuda Island Getaway," G-E's 1960 dealer incentive trip to Bermuda.

Heffernan said the "Smart Set" promotion "has been pretested with good results, and promises to be a terrific lead-getter and order-closer for all dealers who actively participate. It recognizes that the woman is a major buying influence, and that one sure way to appeal to women is through the world of fashion."



ABOVE: Two Airtemp Model 3206-00 systems mounted on roof serve two penthouse apartments. Banw of three cooling towers can also be seen. BELOW: Bank of three water chillers and the two system circulating pumps are in the basement.



Apartment Hotel Uses Variety of Equipment

PHOENIX, Ariz.—A variety of cooling equipment to meet a variety of needs has been installed in the new luxurious Coronet Apartment Hotel here.

First and second floors of the nine-story structure consist of a lobby, coffee shop, retail stores, and general office space. Third through eighth floors consist of 100 luxury studio type suites. Ninth floor contains three penthoust apartments.

Commercial application of the first two floors calls for cooling practically year around. To handle this load, Climate Control, Inc., air conditioning contractor, installed a 60-ton chilled water system and a separate system for the coffee shop.

The latter consists of an Airtemp model 1205 (48,000 B.t.u.h.) air-cooled condensing unit and two model 1473 evaporator blower units with integral electric heating coils. Condensing unit is located in the basement and discharges up and out the side wall.

A 120-ton system handles floors three through eight. The three 60-ton packaged Airtemp water chillers are located in the basement with the system circulating pumps. Cooling towers, condenser water pumps, and hot water boilers are located on the roof.

Chilled water systems are piped so that the change from heating to cooling, and vice versa, is accomplished by a swing of a lubricated plug cock diverting valve and the flip of a toggle switch.

The large apartment is served by two Airtemp model 3206-00 (51,000 B.t.u.h.) split system heat pumps. The other two are each served by one heat pump system, same model.

The heat pumps are also located on the roof.

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Refrigerant* Leaks
FAST
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PREST-O-LITE
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Refrigeration and Air-Conditioning Outfit

This one handy, compact outfit is all you need to find and fix refrigerant gas leaks. Sensitive leak detector "sniffs" as little as 100 parts of halide refrigerant* in a million parts of air . . . *in seconds*, pinpoints leaks too small to show up in soapy water. Also included in the outfit are 3 sizes of torch stems for open-flame soldering, heating, and brazing; an adjustable gas pressure regulator; interchangeable torch handle; hose; enameled steel carrying case. Models for use with B or MC PREST-O-LITE acetylene tank.

*ASRE numbers 11, 12, 13, 14, 21, 22, 113, 114

$43.00 COMPLETE

PREST-O-LITE air-acetylene equipment and small tanks are available from your local supplier of LINDE products. See him today. Or write for further information to: Dept. 624, LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd St., New York 17, N. Y.

"Prest-O-Lite," "Linde," and "Union Carbide" are registered trade marks of Union Carbide Corporation.

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111	.036	.087
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114	.050	.114
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116	.064	.125
117	.070	.125

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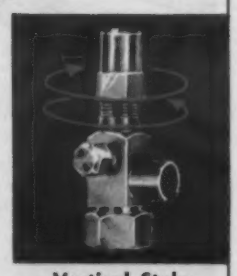

Vertical Style

REFRIGERATION designing engineering sales

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From the Manufacturers

Service Bulletins

In this department, the NEWS presents significant items from information published in the Service and Technical bulletins of manufacturers.

All electrical tests to check completely the electrical system on Bendix-Westinghouse hermetic units can be made with the following equipment:

1—volt-ammeter,
1—test cord extension with fuse for plug-in outlets,
1—insulated jumper wire,
1—auxiliary starting capacitor.

With this equipment, it is possible to check voltage, motor compressor, overload protector, starting capacitor, running capacitor, and starting relay.

BENDIX-WESTINGHOUSE

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The use of sulfur water, salt water, acid water, or water containing in excess of 700 ppm (parts per million) solids is an *abuse* of copper tubing. Also, condensing water flow rates greater than the specified maximum; providing less than the specified bleed-off from the evaporative cooler; or neglecting to clean excessively scaled tubing must be avoided.

ARKLA AIR CONDITIONING CORP.

* * *

There are too many people who believe that spillage of the products of combustion from the draft hood of a gas heating unit creates fumes. This is definitely not the case.

For a gas heater to create fumes in a building, two conditions must exist simultaneously: 1) incomplete combustion and 2) spillage at the draft hood.

While the fumes could not exist without incomplete combustion, the fumes would not escape into the building unless there is spillage at the draft hood. (A detailed discussion of fumes and carbon monoxide detection appear in the same bulletin.)

Janitrol INSTALLER

NOW!
A low-cost, lightweight "Freon" leak detector!

Pocket-sized Halide Leak Detector is the *smallest, easiest-to-use* tool available today to detect hard to find "Freon" refrigerant leaks. Just light the Halide torch and place hose at point of suspected "Freon" leakage. Even traces of "Freon" turn the light blue flame a vivid green. Each butane charger lasts 30 minutes. "OFF-ON" control. Also can be used as a blow torch, soldering tool.

Height: 6½"
Weight: 5 oz.
Chargers: 49¢ per box of 2
Price: $8.95

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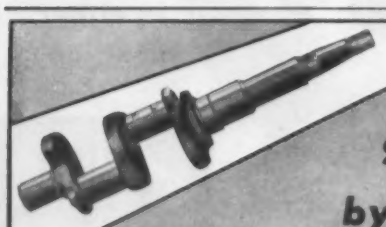

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For Tucson Homes

Evaporative Cooling Pad over Air Intake Boosts Air-Cooled Condenser Capacity

By George M. Hanning

TUCSON, Ariz.—When the temperature soars above 110° F. mark and the customer's air-cooled air conditioner isn't cooling his home even though the compressor is working like mad, what happens?

Does one shrug and suggest a larger air conditioner—or a water-cooled job?

In Tucson, where design dry-bulb temperature is 105° F., such a complaint is not uncommon. It occurs when capacity of the unit is critical to the heat load and the smaller capacity unit was selected.

Nilo and Marion Larriva, owner-manager and sales engineer, respectively, for Larriva's Airco Heat & Equipment Co., air conditioning and heating contractor here, found the answer 12 years ago. They have been using it successfully ever since as a sales tool.

The Larrivas' solution is not a larger unit or a water-cooled condenser. Instead they install an evaporative cooling pad over the air intake louvers of the condensing unit and plumb it to the home water supply.

The moist pad pre-cools the 100° F. ambient air down to 80 to 84° F., before it passes over the condenser. Cooler air over the condenser increases its capacity about 18%, according to the Larrivas.

Total Gain Estimated At Approximately 30%

At the same time, it cuts operating cost of the compressor by about the same amount, giving the customer a 25 to 30% total gain. That's rating it conservatively, they estimate.

Not only is the condenser able to take care of the cooling load when it's hot, but early in the summer, when temperatures are not so high and humidity is close to zero, evaporative cooling can reduce condenser air to about 70° F.

An added advantage of this idea, the Larrivas say, is that it keeps water off the compressor and still provides the compressor with extra cooling.

They point out that evaporative pads are inexpensive to replace when they eventually get clogged and dirty. They advise customers to change the pads twice a year.

1947 Installation Still Giving Satisfaction

Even with this necessary maintenance, evaporative cooling increases the cost of the installation very little, yet gives desired protection on very hot days, the Larrivas note.

They made the first such installation—a 9-ton residential job—in 1947. It is still operating satisfactorily today. They have made many others since.

"When we put a unit in, it has got to work," they comment. "The customer doesn't pay if it doesn't work.

"Sticking our necks out like that has caused us to use our ingenuity many times. But it has paid off in more sales. Our best source of new business is satisfied customers."

The Larrivas' basic sales philosophy is: Convince the prospect that you know more about your business and can give better service than your competitors and you will make the sale.

That it works is attested by the fact that the Larrivas' Airco Heat & Equipment Co., sold and installed 420 refrigerated air conditioners during 1959, largely for residences.

About 90% of the company's business is in the residential field. It is divided about equally between heating and cooling equipment.

The firm handles the Perfection line of heating and cooling equipment, Carrier air conditioning units, "Custom-Aire" furnaces and wall heaters, "Arctic Circle" evaporative air coolers, and Kaiser Aluminum sheets.

Refrigerated Air Conditioning Ratio Rising

Although Airco's four salesmen still sell about three evaporative coolers to every refrigerated air conditioner, the ratio is changing, the Larrivas testify.

"Refrigerated air conditioning sales have doubled themselves each year in the past two years. We expect that they will continue this pace," they declare.

They believe that the rapid growth of the urban area has a great deal to do with the increasing preference for refrigerated air conditioning.

With more than 250,000 people now living in greater Tucson, increasing use of water and moisture producing appliances has augmented the natural humidity of the air so that evaporative coolers are not yielding the comfort they used to.

"People are finding that refrigerated air conditioning is healthier and cleaner, too," they add.

The Larrivas comment that high capacity air conditioners designed particularly for high ambient conditions are needed in Tucson because many new homes are built without attics. High beamed ceilings go right to the roof, leaving it to the roof itself to reject the strong sun load. Thus, greater air circulation is needed.

8-In. Glass Fiber Pad Cuts Vibration from Roof Mounted Units

Roof-mounted air-cooled air conditioners are popular in Tucson. But when operating, they tend to transmit vibrations throughout the house, unless they are installed properly.

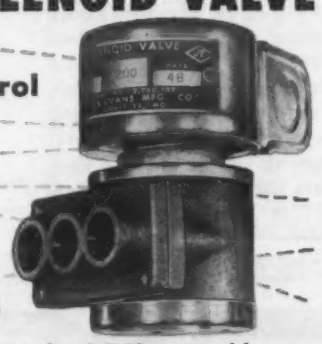
The Larrivas' engineering department applied its ingenuity to this problem about three years ago. To eliminate such vibration they put an 8-in. deep pad of glass fiber on the air conditioner mounting base. They add a metal cap and then float the unit on top of that.

Weight of the unit compresses the pad to about 2 in. The cap, with edges turned down, protects the pad from weather. The pad absorbs all motor vibrations. At the same time, flexible connectors and acoustical insulation prevent noise transmission through ducts.

Yet another instance of Larriva ingenuity that has been translated into sales occurred when a customer wanted to operate two 3-ton air conditioners in his home without using three-

J-E TYPE 701
3-WAY SOLENOID VALVE

for flow control of hot or chilled water with fan-coil units



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4427 Geraldine Ave., St. Louis 15, Mo.

phase current and rewiring.

Three-phase current was not available for residences at that time and would have been expensive to use. Besides, walls of his new home had already been plastered and painted and he didn't want to break through them.

To handle this situation, they hooked up the compressor of the first unit to the room two-wire thermostat. They wired the compressor of the second unit to the heating thermostat on the cooling coil of the first air conditioner.

When coil temperature drops on the first unit, it starts the compressor of the second unit. When it rises, it shuts off the compressor on the second unit.

It not only works, but gives the customer greater economy of operation, the Larrivas commented.

Being able to make such sales at a profit is the earmark of salesmen, they believe.

"Anyone can bid price," they snort, "but the man who keeps the wheels turning is the man who can come up with the profitable sale."

Selling Is Matter Of Psychology

To the Larrivas, selling is a matter of psychology. They consciously use a lot of it.

"You have to surround prospects with an aura of tenderness," they say. Get them into a happy, receptive frame of mind.

Sell with a smile. Keep smiling and the prospect, no matter what his mood might be, will soon be smiling back at you. Then he is more receptive to your ideas.

"We may charge the highest prices in town, but we do it with a smile—and proper engineering," they comment.

What do the Larrivas do with the prospect who says, "Never mind the sales pitch. Just give me your price."

They give him a price. But they add, "It's the highest price in town." Keep shopping, they advise the prospect. "But when you get all your prices, come back and we will advise you what the others have left out of their bids."

This usually piques enough curiosity to make the prospect call back. Then the Larrivas try to sell up, emphasizing the planning that goes into a good installation and the extra features the prospect will get from quality equipment.

"If it's price he really wants, we can give him price. But we advise him of the limited guarantee," say the Larrivas.

Behind the sales front, Airco has 26 to 28 service and installation men and four men in the sheet metal shop headed by Don Jones and Maurice Hemingsen.

The shop is geared to manufacture 30 duct systems a day through the use of power tools redesigned by Airco's engineering department. One tool, designed by them is a knee-operated cutter-feeder. Aluminum sheet on a 800-lb. roll is automatically rolled onto the cutting table and cut to within 1/16 in. accuracy by knee control.

Airco uses all-aluminum in its distribution systems. Reason: Aluminum has a lot less static resistance, it's a better insulator of the conditioned air, and it involves less labor.

Restraint Charge Hits Riverside Plan--

(Continued from Page 1, Col. 3)

successful bidders, which fee is used for the operation of the bid depository.

The complaint has been filed in the State Superior Court in Riverside, against Inland Bid Depository, a corporation, and Allied Construction Industries, a corporation.

The Attorney General's office in Los Angeles says Allied is the group which set up Inland.

William C. Dixon, special Assistant Attorney General in charge of the Los Angeles anti-trust unit, said the activities of other bid depositories in the construction industry were under examination and appropriate action would be taken against any organization or combination organization which imposed restraints in violation of the state anti-trust laws at any level of the construction industry in California.

Membership Identified

Defendant Inland is alleged to have a membership of approximately 250 sub-contractors who, on occasion, also act as materialmen. It is stated the membership includes substantially all the principal sub-contractors in the Inland counties trade area who bid to general contractors upon public projects.

Inland is described as a bid depository to be engaged in the business of handling and processing bids which are submitted by its members to general contractors, who thereafter submit competing bids on public projects to awarding authorities in the area.

Here is what the complaint has to say about the other defendant named:

"Allied Construction Industries is a private non-profit membership corporation, a trade association whose membership consists of approximately 370 general contractors, sub-contractors, and materialmen.

"Membership includes substantially all the principal general contractors, sub-contractors, and materialmen in the Inland counties trade area."

Members of Inland, and of Allied, are not made defendants but are named co-conspirators, who signed and agreed to the rules and regulations of Inland.

Contractors Outside Area Bid on Jobs

The complaint states sub-contractors and materialmen located outside the Inland area compete with sub-contractors and materialmen within the area for the prospective business of general contractors submitting bids to the awarding authority on public projects. Those outside the area are frequently contacted by general contractors both within and outside the area for bids to generals listed in the Los Angeles "Green Sheet" or the Los Angeles "Daily Construction Reports," the complaint states.

But the Attorney General's complaint accuses a joint committee of Inland and Allied members in February, 1959, began deciding what public projects would be processed through Inland and of announcing such decisions in the "pink sheet," known as The Inland Empire Building News, which circulated only within the area.

Claim Depository Plan Restricted Competition

Effects of the combination and conspiracy, the complaint says, have been and are to limit and restrict competition between sub-contractors and materialmen submitting bids to general contractors, to members of Inland.

Costs are increased, the complaint says, by the additional and arbitrary fee of Inland for processing bids submitted by its members to general contractors competing with each other for the award of public projects.

As a result of the "effects of this illegal conduct," the complaint asks the Superior court to adjudge and decree the "aforesaid combination in restraint of trade" unlawful and asks that Allied be "perpetually enjoined and restrained from" . . . "continuing, revising, or renewing the aforesaid combination and conspiracy."

From "forming, organizing, establishing, conducting, supporting, or maintaining any bid depository."

From "in any manner conspiring or otherwise acting in concert in such a manner or by any means or methods which may effect a restraint of trade in the commerce involved in public projects."

And that "Inland Bid Depository be dissolved."

Inland Plans Changes On Rules for Bids

RIVERSIDE, Calif. — Inland Bid Depository expects to continue to operate and serve the construction industry in the Riverside and San Bernardino counties area.

Inland's attorney, John Lonergan, says he may advise the Directors to change their Rule 6 which provides now that a subcontractor cannot bid to the general contractor who is not using the depository for the job being bid.

Rules now do not provide for a maximum on bid depository fees which are ½ of 1% of the successful bid figure.

The amount of the depository fee was at issue in the recent Bakersfield Construction Industry Bid Depository case. Federal Judge Yankwich ruled that the defendants are enjoined and restrained from adopting, enforcing, or continuing in effect any rule which "requires that subcontractors who have been awarded contracts as a result of bids deposited at such bid depository shall pay any fees which, in the aggregate and in combination with any other fees collected pursuant to any such rule, are in excess of the amount reasonably required for the operation and maintenance of such bid depository."

The changed Bakersfield rule provided a maximum fee of $250 for plumbing, and the same maximums for electrical, for heating and ventilating, for sheet metal. In all of these the ½ of 1% is charged but the maximum is $250 in each.

Flexible Duct Row--

(Continued from Page 1, Col. 3)

pending, but presumably would be dropped.

The walkout threatened to tie up an estimated $470 million in construction. It was directed specifically against the air conditioning system in the First National City Bank building. But it affected Triangle employes working on 21 other buildings.

Local 28 of the Sheet Metal Workers International Association struck the company "to protect jobs." The union insisted that ductwork on the interior system at First National City Bank be fabricated by its members by hand. It had no objections to use of the flexible duct on exterior systems.

The flexible duct is made by Carrier Corp. and Wiremold Corp. by, reportedly, members of the same local.

Triangle protested to the National Labor Relations Board that the strike was a secondary boycott. On motion of the NLRB, Federal Judge Edward J. Dimock signed a temporary restraining order.

The union would not obey the order to return to work, denying that this was a secondary boycott. Union contended it was a move to protect jobs. The local also rejected a request by the Sheet Metal Workers International Association to return to work.

Carrier Strike--

(Continued from Page 1, Col. 1)

products have been moving from the plant without interference. Decision to add a second shift may be made sometime during the week of April 11, but may depend on whether a company requested injunction limiting picketing activities is granted.

Company and union representatives were to resume meetings on April 8 on a labor contract. Carrier said it would not discuss any issues pertaining to the strike, since it said it considered the strike to have been settled by the voluntary return to work of the vast majority of the work force. The strike had been called a month ago because of disciplinary action taken against some of the union officials.

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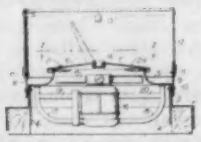
PATENTS

Week of Nov. 10 (Concluded)

2,911,900. RETAINING MEANS FOR THE DAMPERS OF VENTILATORS. Emil Rudy, Cleveland, Ohio, assignor to Loren Cook Co.

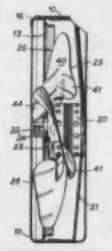


1. A vertically axised ventilator including a ventilator shaft and a damper which closes the shaft by gravity, a stationary wall providing a seat for the lower face of said damper when the damper is in its closed position, air moving means arranged below said damper to move air against said damper. . . .

2,912,013. DUCT CONSTRUCTION. Helmut A. Freyholdt, Santa Monica, and Fred M. McCown, West Covina, Calif., assignors to Industrial Park Corp.

2. A locking and connecting device for sheet metal ducts and the like comprising: an elongated backing member of resilient strip metal including an anchor portion and a longitudinal resist portion on each side thereof and integral therewith, said resist portions lying in planes inclined to the plane of the anchor portion. . . .

2,912,159. FANS. Karl M. Ganger and William H. Wentling, Dayton, Ohio, assignors to The Lau Blower Co., Dayton, Ohio.

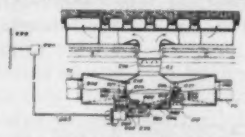


1. In combination, a reversible electric motor having a drive shaft, a fan blade assembly mounted on said shaft and including a plurality of blades, each of said blades comprising a main generally flat center portion extending from the inner edge of said blade and including at least a major portion of the outer edge thereof. . . .

2,912,230. REFRIGERATING APPARATUS. Francis I. Rataiczak, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.

1. In an evaporator, a support element, a tube having an integrally formed projecting flange arranged adjacent said support, said flange extending a distance greater than the thickness of the wall of said tube throughout the width of said flange, and metallic means bonding said flange to said support, said flange serving to hold said support and said tube wall in spaced relationship from one another. . . .

2,912,231. AIR CONDITIONING STRUCTURE. Richard P. Goemann, Port Washington, N. Y., assignor to H. H. Robertson Co., Pittsburgh, Pa.



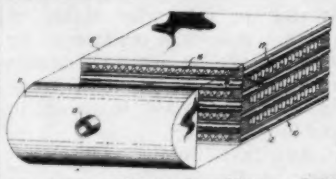
7. Apparatus for mixing two separate air streams for use in an air conditioning system in a building having air carrying floor cells comprising a housing provided with two separate air inlets, a mixing chamber within the housing communicating with said inlets and with said floor cells, a supply duct connected to each inlet. . . .

2,912,383. COMPRESSION REFRIGERATION WORKING FLUID. William J. Huth, West Chester, Pa., assignor to Sun Oil Co., Philadelphia, Pa.

1. Compression refrigeration working fluid consisting essentially of a halogenated hydrocarbon refrigerant, a mineral oil compression refrigeration lubricant, and from 5 to 20 percent by volume, based on said lubricant, of a soluble polymeric styrene, having average molecular weight in the range of 200 to 100,000.

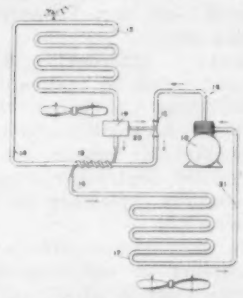
Week of Nov. 17

2,912,749. METHOD OF MAKING A HEAT EXCHANGER. Norman G. Bauernfeind and Homer D. Huggins, Racine, Wis., assignors to Modine Mfg. Co., Racine, Wis.



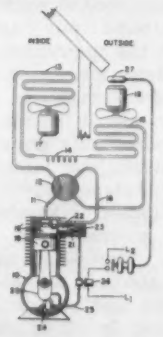
1. In a method of making a fluid pass element for a heat exchanger, the steps comprising folding the opposite edges of two flat heat transfer sheets having a coating metal and a base metal with the melting point of said coating metal being lower than the melting point of said base metal. . . .

2,912,831. REFRIGERANT FLOW CONTROL FOR A REFRIGERATION SYSTEM. Everett P. Palmatier, Solvay, N. Y., assignor to Carrier Corp., Syracuse, N. Y.



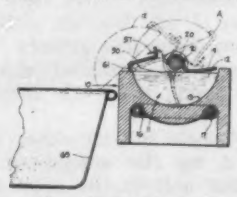
7. A refrigeration system comprising a compressor, a condenser, a discharge line connecting the compressor and the condenser, an evaporator, a liquid line connecting the condenser and the evaporator, a suction line connecting the evaporator and the compressor, refrigerant flow restricting means interposed in the liquid line and having at least a portion thereof in heat exchange relation with a portion of the discharge line. . . .

2,912,833. HEATING AND COOLING APPARATUS. William L. McGrath, Syracuse, N. Y., assignor to Carrier Corp., Syracuse, N. Y.



1. In apparatus for heating and cooling an enclosure, a refrigeration system comprising a compressor having at least one cylinder with a piston member therein, and a lubrication system, a first heat transfer coil located within the enclosure and a second heat transfer coil located outside the enclosure, connected to form a circuit for the flow of refrigerant, means for automatically adjusting the clearance in said compressor to vary the volumetric efficiency of the compressor. . . .

2,912,835. ROTARY ICE CUBE EJECTOR MECHANISM. Edward E. Modes, Chicago, and Nicholas Miller, Berwyn, Ill., assignors to The Dole Valve Co., Chicago.



5. In an automatic ice block ejector, an ice block tray, means for freeing ice blocks from said tray, means for removing frozen ice blocks from said tray comprising a shaft extending along the top of said tray and journaled for pivotal movement with respect thereto, pusher blades extending from said shaft and moved thereby to engage and push ice blocks from said tray. . . .

(To Be Continued)

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FIFTEEN YEARS in air conditioning and heating business. Application engineer with service and installation supervisory experience, wholesale and retail sales background in residential, commercial and industrial applications. Have worked for manufacturer, distributor and contractor. BOX A6529, Air Conditioning, Heating & Refrigeration News.

REFRIGERATION AND air conditioning engineer, (50) Belgian. Speaks very good French, Dutch, and Spanish, also speaks and reads good English. 30 years' experience, last 5 years as supervisor in petroleum company in the field. Experience, both technical and practical in large installations—Freon, ammonia and sulfur dioxide. Knowledgeable in all electrical automatic controls and regulating systems. Served as distributor for manufacturers in refrigeration materials and spare parts. Seeks interesting employment. Prefer location in France, South Coast or Algerian country in July, 1961. Write to: BOX A6533, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

MANUFACTURER'S AGENTS wanted in several key trade areas to represent our complete line of air conditioning products. For information, write Manager, Air Conditioning & Refrigeration Division of CRANE CO., Johnstown, Pennsylvania.

WE ARE ready to add a district supervisor to our growing factory field sales organization. We can show records of earnings to convince you that in exchange for a good job done there's nothing better in the industry. The man we want must have sold to food chains, supers and wholesale grocers and be able to supervise a dealer organization. Write brief resume of experience to: SHERER-GILLETT COMPANY, Marshall, Michigan.

AIR CONDITIONING & heating salesman. Five years' experience in residential estimating and closing. Salary and transportation furnished, permanent position with chance for advancement. Ideal climate. Send complete resume and photo. Must be able to start immediately. THEODORE M. WILLIAMS CO., 979 Volusia Ave., Daytona Beach, Fla.

SHOP SUPERINTENDENT wanted by Florida manufacturer of quality heating and air conditioning equipment. First class assembly line production man capable of expediting construction and ability handle employees—must be cost conscious. Small but fast growing corporation with unlimited potential. Opportunity to advance—salary open. Send complete background, age, education, etc. to: BOX A6516, Air Conditioning, Heating & Refrigeration News.

REFRIGERATION SERVICE Manager wanted by old established Florida contractor. Must be capable of servicing all types of heating and air conditioning equipment, organizing and operating service department at profit and handling customer relations. Send complete resume of education, age, experience, and reference to: BOX A6517, Air Conditioning, Heating & Refrigeration News.

AIR CONDITIONING Sales Engineer wanted by well-established Florida contractor handling highest quality equipment for past 15 years. Must be graduate Mechanical Engineer, pleasing personality, capable of selling quality installations. Earnings limited only to ability and initiative. Send resume, photo, complete details to: BOX A6518, Air Conditioning, Heating & Refrigeration News.

WHOLESALE SALESMAN: Distributor, air conditioning and heating equipment for the top national manufacturer, needs a man for the Buffalo, New York area to call on dealers, architects, consultants. We require a hard-working, ambitious, experienced man who would share in the profits and have a voice in management. Please send complete resume to: BOX A6527, Air Conditioning, Heating & Refrigeration News.

REFRIGERATION & air conditioning supply wholesaler—California Bay area—needs outside sales engineers and countermen. In reply—please give full resume of experience handwritten, and include photograph. BOX A6530, Air Conditioning, Heating & Refrigeration News.

ATTENTION: MANUFACTURERS Representatives. We are manufacturers of a line of residential and commercial air conditioning, air and water cooled, and water and steam boilers. We need men experienced in calling on installing contractors. We have have some good territories still available. If interested, write: BOX A6531, Air Conditioning, Heating & Refrigeration News.

SERVICE MANAGER—air conditioning and heating—for leading fuel oil company—Long Island. Must have good knowledge No. 2 and No. 4 oil burners and be qualified to supervise large staff of servicemen and dispatchers. Excellent opportunity. Attractive salary-pension-other benefits. Write in confidence. BOX A6532, Air Conditioning, Heating & Refrigeration News.

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NOTICE: DISTRIBUTORS, dealers, servicemen, users refrigeration equipment—repair parts available all models Baker ammonia and Freon compressors. Also models 6B and F6B ammonia compressors. We are exclusive Baker export sales office. Manufacturers' export agents refrigeration, air conditioning, and allied equipment. THE KEISER COMPANY, 7651 South Ashland Avenue, Chicago, Illinois.

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ATTENTION REFRIGERATION Servicemen: Send for catalog listing values in refrigeration and air conditioning parts, relays, capacitors, compressors. Savings up to 50%. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

BUSINESS OPPORTUNITIES

BUSINESS FOR Sale: Well-established air conditioning and heating contractor specializing in sales, service and installation, willing to sell all or part interest in business located in Southern California. All valid inquiries will receive prompt reply. Write: BOX A6528, Air Conditioning, Heating & Refrigeration News.

Procedure for Future Changes Established

New Los Angeles Refrigeration Code Has Relatively Few Minor Revisions

LOS ANGELES—The revised Refrigeration Code for the City of Los Angeles which went into effect recently following passage by the City Council and signature by the mayor, makes relatively minor changes in content, mainly with reference to refrigerating machinery room safety provisions. It also establishes procedures for future changes.

A proposed revision which aroused probably the most controversy related to a requirement for the examination and other qualifying tests for a "Maintenance Refrigeration Mechanic" working in the employ of a building owner or operator. Opposition to such a provision by representatives of industrial, commercial, and multiple occupancy residential structures resulted in the deletion of any reference to it in the revised code.

Principal Changes In New Code

Here are some of the principal changes which have now gone into effect in the new Refrigeration code:

Superintendent of the Department of Building & Safety shall make an annual report to the Board of Building & Safety regarding requests for deviation and for approval of materials and methods, regarding violations, regarding criminal cases filed for violations, changes and improvements, and investigation of fire and structural damage to building.

The Board shall establish a Refrigeration code committee to submit recommendations of changes to facilitate interpretation, propose deletions of provisions found not in conformance, and code changes due to new refrigerating materials and equipment.

Carrene 7 was added to class 1 refrigerants.

"Every refrigerating condensing unit of 50 or more hp. rating which contains any class 1 refrigerant, shall be enclosed in a machinery room.

"Every refrigerating condensing unit of over 10-hp. rating which contains any class 2 refrigerant shall be enclosed in a machinery room."

Above requirements shall not apply to:

"Any refrigerating condensing unit located outside of a building or on the roof of a building and not less than 20 ft. from any door, window, or ventilating air inlet in any building.

"Any refrigerating condensing unit located in a building used exclusively for ice making or cold storage.

"All refrigerant containing portions of any refrigerating system containing a class 2 refrigerant (which includes ammonia) in any public assembly building shall be located in a machinery room. . . ."

The new code provides that refrigerating equipment in institutional, public assembly, and hazardous occupancies, shall have no portion of any refrigerating system located therein unless enclosed in a machinery room.

Regarding refrigeration machinery rooms required by the code "there shall be no opening between any refrigeration room housing equipment containing any class 2 refrigerant and any room or space in which there is an open flame, spark-producing device, or heating surface in excess of 800° F.

2 Permanent Exits

"Every refrigeration machinery room shall be provided with at least two means of exit, one of which may be by means of a permanent ladder.

"Every exit door shall swing outwardly from the refrigeration machinery room, and shall provide means of access not less than the size of such door to the outside of the building.

"Every refrigeration machinery room shall have an area of not less than 50 sq. ft.

"There shall be no direct opening between any refrigeration machinery room and one in which a boiler is located."

4 Pacific Northwest ASHRAE Chapters Coordinate Meetings

SEATTLE—Regular meeting dates have been arranged to fall in one week of each month for the four chapters in the Pacific Northwest of the American Society of Heating, Refrigerating & Air-Conditioning Engineers.

Charles L. Hall, Director for ASHRAE's Region X, says the meeting schedule is as follows:

Second Monday of the month, Inland Empire Chapter, Spokane.

Tuesday after second Monday of the month, Puget Sound Chapter, Seattle.

Wednesday after second Monday of the month, British Columbia Chapter, Vancouver.

Thursday after second Monday, Oregon Chapter, Portland.

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Far West Market--

(Continued from Page 1, Col. 4)

pretty far in the lead among the leading states, with an increase of more than 100%.

In this area of increase in heat pump shipments, Arizona was also well up, with an increase of more than 60%. States in the Pacific Northwest also recorded good gains.

Among Leaders In Split Systems

In split-system air conditioners California was among the leaders in 1959, and the gain it registered in this category over 1958 was probably the greatest of any of the major areas.

California led all other states in distributors' sales to dealers of both electric household refrigerators and food freezers, according to official figures just released by the National Electrical Manufacturers Association.

"Our studies show that the West Coast area, including California, Oregon, Washington and parts of Montana, Idaho, and Nevada, has approximately doubled in its relative importance to the air conditioning industry from 1954 to 1958," declares Russell Gray, Carrier Corp. vice president and general manager of the Unitary Equipment Div.

In terms of numbers of packaged units sold, Gray says that the Pacific area accounted for about 5% of industry sales in 1954, and 9.2% by 1958. As indicated above, the 1959 final figures may have gone up considerably beyond this.

Boom In Cooling Of Existing Buildings

"There is a real boom in the air conditioning of existing shopping centers, stores, and offices of all kinds," Gray stated. "In fact, the real problem is the shortage of qualified sales, service, and installation personnel to develop this market at the pace it is capable of sustaining," Gray said.

Residences are becoming a more important market with the heat pump showing great promise, Gray stated. Residential construction climbed from $345,205,000 in 1954 to $576,159,000 in 1958, a 67% jump. During the same period, non-residential construction increased 71%.

U.S. Census Bureau figures on population gains by regions and individual states at the end of 1958 over 1950 showed the Far West way ahead. The entire Far West region was the biggest sectional gainer, showing a 29.1% increase. Next largest increase was shown by the North Central area, with 14.9%.

Among states, Nevada was the leader with a 69.7% increase. Florida was second, and Arizona was third with a 56.7% population rise. California, in fifth place with a gain of 34.9% had the largest numerical increase. As of Jan. 1, 1960 the population of Los Angeles County was put at 6,016,405, and rising at the rate of 540 persons a day.

Some figures on Arizona are indicative of the same type of growth. Population in 1959 was up some 30% over 1955, retail sales were up more than 45%, but most significantly, the dollar value of building permits had more than tripled.

NLRB Ruling--

(Continued from Page 1, Col. 2)

Plumbing Contractors and the Mechanical Contractors Association of Detroit engaged in similar unfair labor practices. It said the groups could not negotiate with a Local 636 bargaining committee which included supervisors.

Companies named in the order are Farrington Co., Goss Mechanical Contractors Co., J. W. Partlan Co., Donald Miller Co., Johnson Service Co., and United Engineers & Constructors, Inc. A seventh firm, the

The board's ruling was based on a complaint filed by James P. Duffy, a member of the local.

Duffy charged that the Detroit associations could not negotiate a labor contract with the local because its bargaining committee was made up, in part, of supervisors. He claimed that at various times during 1957-58, 10 of the union's 22 offices were held by supervisors.

One of the 10 supervisors cited in the original complaint was Donald McNamara, nephew of Senator Patrick V. McNamara, himself a former president of the local. However, Don McNamara is now a full-time business agent for the local, it was reported.

According to Tim McCarthy, Local 636 business manager, only one current officer — an executive board member — is a foreman.

Following hearings in Detroit early last year, Trial Examiner John C. Fischer recommended that the complaint be dismissed. He found that the 10 supervisors' participation in union affairs other than negotiations did not constitute illegal assistance in an industry where it was established custom for supervisors to belong to the union and their union activities were not encouraged by, or for the benefit of, the employer.

However, the NLRB ruled that the respondent associations "interfered with the administration of the union by acquiescing in McNamara's participation in contract negotiations in 1957 and 1958 on behalf of the union, in violation of Section 8 (a) (1) and (2) of the Act."

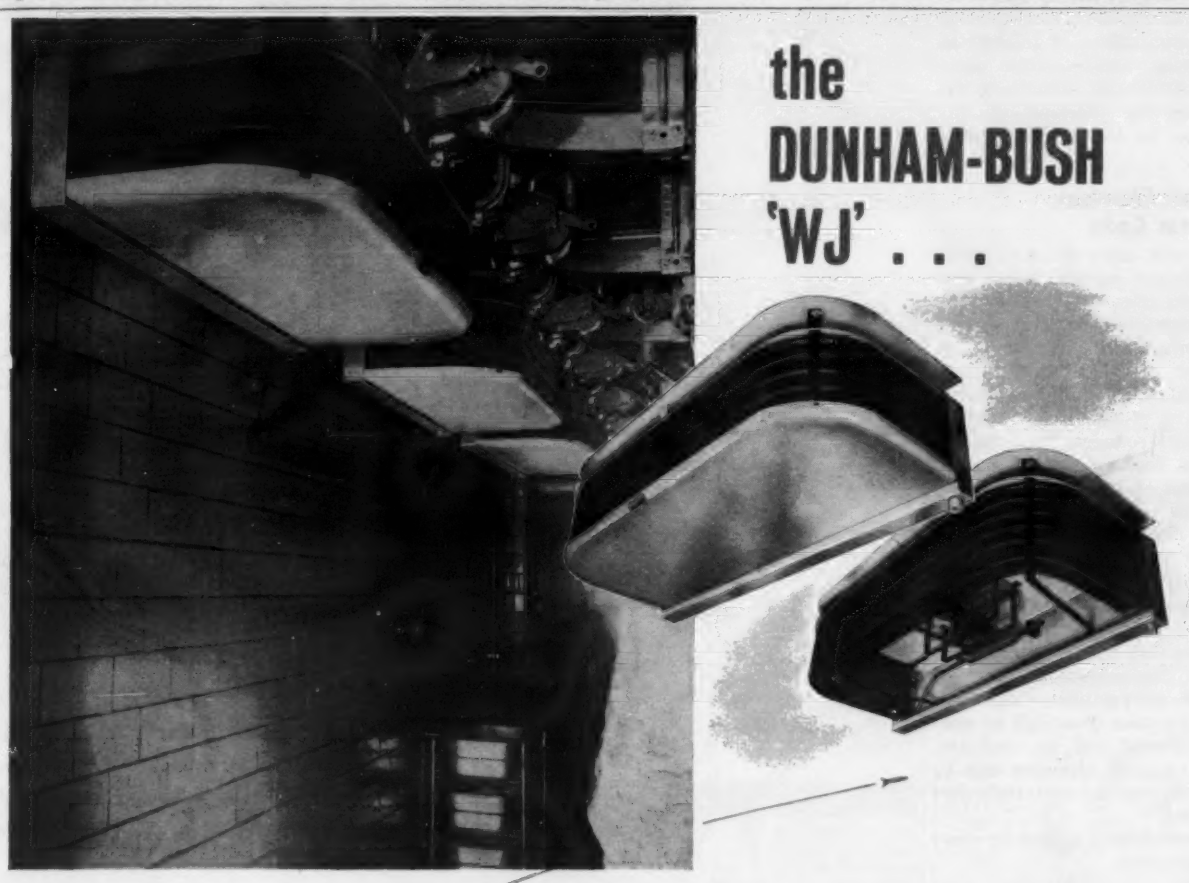
The board also said that on the basis of the other union activities of McNamara and all but two of the other supervisors, we find that, by participating through their supervisors in such union activities as holding union office and voting in union elections, the respective employer of these supervisors interfered with the administration of the union. . . .

"These supervisors, long-time members of the union, have progressed from journeyman status to their present rank in the supervisory hierarchy, and, although no longer in the bargaining unit, they still retain their membership in the union.

"While such supervisors may retain or seek union membership, we will apply the rule of *respondeat superior* to any active participation by them in union affairs to the same extent as we apply that rule to other areas of supervisory conduct.

"Accordingly, we deem such participation by these supervisors to constitute in effect participation in union activities by their employers and, hence, unlawful.

"This is in accord with the Board's finding in the *Nassau* case, *supra,* that participation by supervisors, not in the bargaining unit, in the internal affairs of a unit of rank-and-file employes constitutes unlawful interference with the administration of the union. . . ."



the DUNHAM-BUSH 'WJ' . . .

modern as a missile, but designed to use little space

As up-to-date as our jet and missile age is the 'WJ' line of unit coolers . . . offering user and installer a rich profusion of features that enables the 'WJ' to satisfy the ultimate in design and performance demands.

Draw-through type air distribution makes it possible to clean the coil and special sawdust screen *from the outside.* Air movement is along the ceiling and walls, *away from the product,* preventing air blast drying yet ensuring proper cooling. A split full-size drain pan makes internal parts fully accessible, *without disconnecting the drain lines.* And, advantageously, the 'WJ' is ideally suited to installation at the juncture of wall and ceiling, *thereby using very little valuable storage space.*

The 'WJ' is available in seven sizes ranging from 3500-24,000 Btu/hr (at 10° TD). Additional construction features include plate type serrated fins, tubing sized according to loading, and baked white enamel casings. For full details, contact the Dunham-Bush sales engineer near you.

Dunham-Bush, Inc.

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DUNHAM-BUSH

AIR CONDITIONING • REFRIGERATION • HEATING • HEAT TRANSFER